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BOOK ONE

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HOME HYGIENE

BY

MARY S. HAVILAND

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LIPPINCOTT'S SCHOOL TEXT SERIES
EDITED BY WILLIAM F. RUSSELL, PH. D.
DEAN, COLLEGE OF EDUCATION, STATE UNIVERSITY OF IOWA

MODERN PHYSIOLOGY HYGIENE AND HEALTH

BOOK ONE

THE PLAY HOUSE

HOME HYGIENE

BY

MARY S. HAVILAND

RESEARCH SECRETARY OF THE
NATIONAL CHILD WELFARE ASSOCIATION, INC.

ILLUSTRATED BY
MARGARET F. BROWNE

PHILADELPHIA, LONDON, CHICAGO
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PREFACE

The immortal Mr. Dooley has declared that "you can lead a boy to college, but you can't make him think."

The object of these little books is to make children *think* about health, for while it may be "never too late to mend" bad health habits, it is never too early to form good ones.

Health cannot be forced from without; it must be fostered from within. It is not enough for us to provide our children with proper food, clothe them suitably and keep them clean. We must also give them an intelligent understanding of the hows and whys underlying the laws of hygiene, and must impart to them the contagion of our own enthusiasm for health.

Therefore I have sought, in these informal talks with "Ruth and Paul," not to convey the maximum number of facts, but to arouse the maximum degree of interest. Facts may be quickly forgotten, but interest, once fully aroused, never quite dies.

Many a boy or girl lives like a boarder in his own home, totally unfamiliar with its workings, totally uninterested in its healthful or unhealthful regime. This is especially true in this ready-made age. THE PLAY-HOUSE is an attempt to show how delightful an adventure is the making of a simple, healthful, happy home, and how closely the making of such a home is bound up with the health and character of its makers and members.

To many friends thanks are due for advice, criticism and proofreading. I also desire especially to acknowledge my debt to Dr. W. F. Russell, Dean of the College of Education of the University of Iowa; Professor Jean Broadhurst and Miss Caroline E. Stackpole of Columbia University, and Dr. Martin Edwards of Boston, all of whom have given generously of their time and interest in behalf of these books. To Miss Emma Dolfinger, Normal School, Louisville, Kentucky, I am indebted for the valuable questions and suggestions at the end of each chapter.

MARY S. HAVILAND.

National Child Welfare Association,
New York City.

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THE PLAY-HOUSE

CHAPTER I

THE TREE-HOUSE

"ROCKABY BABY on the tree-top!" sang a gay voice overhead. Uncle George halted to peer upward through the cherry-tree boughs. A plump, red cherry struck his cheek, followed by a vision of Ruth's flushed face and tangled locks framed in intertwining, sun-flecked leaves.

"Oh, Uncle George," she cried, "do come up into my tree-house (*frontispiece*) and have some cherry-wine in my parlor."

"Nothing I'd like better," assented Uncle George, "but please direct me to the front door-steps, kind lady."

"Oh, do you really need steps?" queried Ruth, in what her brother Paul called her "grown-up" voice. "I didn't suppose you were so feeble. When Mother comes up, she uses the ladder that is in the garage, but Father and Paul and I just climb."

"Indeed! Well, here goes!" And after a moment of "just climbing," Uncle George was sitting on the platform in the cherry-tree beside Ruth and drinking a glass of the cherry-wine.

"I made it myself—out of my own head," explained Ruth. "I just squeezed the juice into some

ice-water and then sugared it. I do love this tree-house. I can make all sorts of messes here and never bother anyone and never be bothered *by* anyone. I'd like to live up in a tree all the time."

"You ought to go and live in the Philippines," replied Uncle George. "I was reading last night about a traveler who said that in the wilder parts of the Philippine Islands there are whole villages built on platforms in the trees like your house here. He hunted and hunted for one of these villages until at last he came upon a rustic ladder. He climbed this and found a swinging bridge-path from tree to tree. He walked along through the tree-tops in this way until he reached the village of the Manobos."

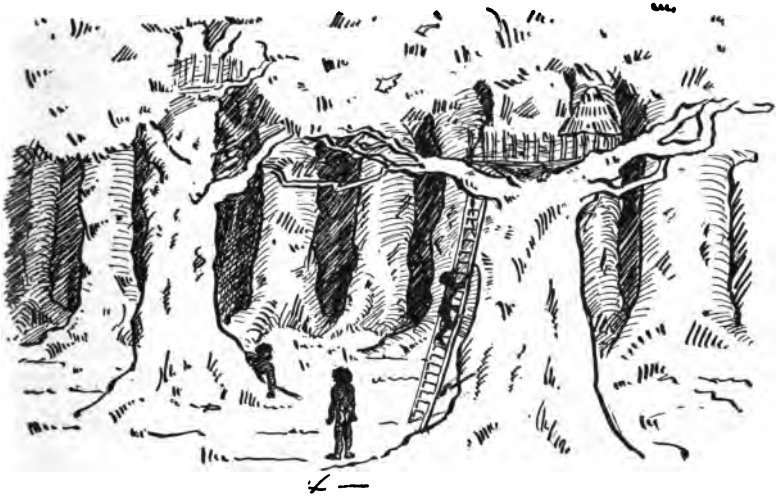
"How queer!" exclaimed Ruth. "To have a whole village full of people living up in trees. It sounds like the Banderlog in the Jungle Book. You know they were monkeys and lived way up in the tree-tops in the jungle."

"Yes," agreed Uncle George. "It does seem queer to us, but I suppose our great-great-great-ancestors, thousands of years ago, if they lived in the tropics, where there were lots of hungry beasts roaming about, were only too glad to have a safe home up in a tree, out of reach of their enemies. Perhaps those far-away ancestors of yours have handed down to you their love of the tree-tops and that is why, when you want to get away from folks, you love to scramble up here."

"Perhaps that is the reason," mused Ruth. "But my tree-house isn't in the jungle, and sometimes,

even in summer, it's too cold up here. And on very rainy days the rain beats right through the lovely, green-leaf roof and spoils my parlor carpet. Once I forgot and left Edith Louise here overnight, and it rained, and in the morning all the paint was washed off her face and her hair was ruined."

"How sad!" said Uncle George. "You see, Ruthie, the chief reason for building houses, long,



long ago, was so as to provide a safe shelter for the children—a place where the wild beasts couldn't attack them and where they would be sheltered from rain and cold. In northern climates, the trees were too chilly for homes, but often the limbs were cut down and then woven together to form a rude hut, and the sides were daubed with mud and dried. They looked something like a bird's nest turned upside down on the ground."

"But," objected Ruth, "I should think they would be awfully dark and stuffy, without any windows or chimney."

"So they were, and besides that they were very damp, being built right on the ground. And if a fire was built inside to make them a bit warmer, there was no place for the smoke to escape."

"That was the trouble that Paul and Jim had in their pirate cave last summer," said Ruth. "They found a perfectly splendid cave over in Peckham's woods and they used to play pirate and cook potatoes and things right in the cave. I used to play be a maiden that they had captured and were holding for a ransom, and I was supposed to do the cooking."

"What fun!" said Uncle George.

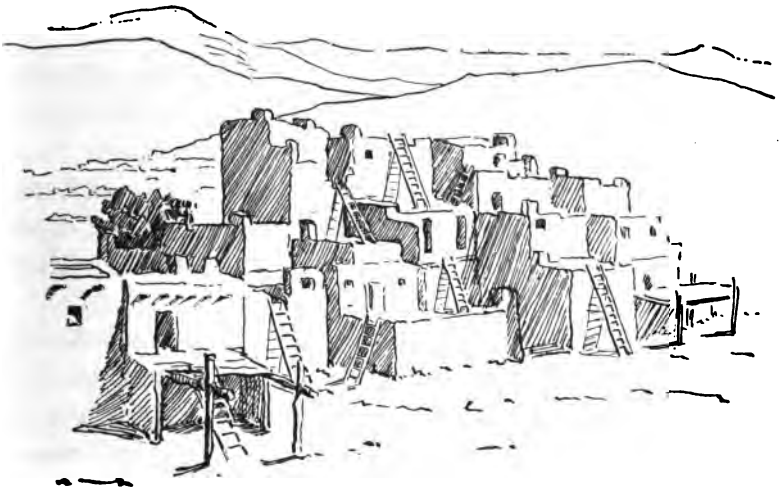
"Yes, but the smoke got into our clothes so Mother said 'Phew!' every time we came into the house, and besides it made our eyes sore, so we had to stop it."

"People have always lived in caves more or less," said Uncle George, "but, as you say, they are dark and very smoky. Somewhat like a glorified cave are the pueblos where the Zuñi and some other Indian tribes live."

"Did you ever see one?" asked Ruth.

"Yes, last year, when I was in New Mexico, I saw

a very interesting pueblo. Here is a picture of it that I took. You see it is built up on a cliff and each story is set further back than the one below it. It is made of sun-dried brick with no doors in the ground floor. The rude ladders lead up to the roof and then you go through a hole in the roof down another ladder into the room. Often a whole tribe of Indians lived in one pueblo."



"I don't think that would suit me very well," said Ruth. "I'd rather have a nice little home of my own. The pueblo looks almost like one of the tenement houses that Mother and I saw in New York."

"It wouldn't suit me either," said Uncle George, "but among savages and among our own ancestors, long ago, there was such constant danger from other savage tribes and from wild animals that everyone wanted to live together so as to fight the common

enemy. In Norway, in the olden days, a nobleman and his wife and his sons and their wives and all the servants and relatives lived together in one great hall of a single room. Then, if they were attacked, they could all help to defend the women and children. They had another way of keeping an enemy from taking them by surprise, too."

"What was that?" queried Ruth, eagerly.

"Why, they made the entrance door very low, and they built the sill very high, so that anyone who came in had to double up and bend his head. Then, if he was an enemy, they could hit him on his bent head before he had a chance to attack them."

"How awful!" Ruth shuddered. "I certainly am glad that nowadays we don't have to think all the time about building our houses so that we shan't be killed by beasts or murdered by enemies."

"No," replied Uncle George, "luckily, we don't have to think much about those enemies, but we do have to think about a good many things that our forefathers never dreamed of. We can't live in trees, because, as you said, they are too cold and wet. We don't like caves, because they are damp and smoky. And we don't like to live all in one great room where we can't ever get off by ourselves. Perhaps you'd like to live in a tent, as the Indians mostly did."

"I'd like that first rate," said Paul's voice. It was followed by his curly head and wide-open blue eyes as he hoisted himself up onto the platform and coolly helped himself to a glass of cherry-wine. "Jim Nixon and I are going to take all our stuff out of the

cave and we're going to make a tent back of Jim's house and camp out in it. Jim's name is Ox Jaw and I'm Sitting Bull."

"Tents are lots of fun," agreed Ruth. "Why did some of the Indians live in them and others live in pueblos?"

"Because," said Uncle George, "most of the Indians were hunters, so they wanted to pack up easily and move on in search of fresh game. They couldn't live in a house of brick or even a hut of branches. But a tent can be packed up in a few minutes and carried away and then set up wherever you want it. All people like the Indians and the Arabs, who wander from place to place, have no fixed homes, but 'fold up their tents and silently steal away' whenever they feel like it."

"Well, that wouldn't suit me, either," said Ruth, decidedly. "I want a real home that I can fix up with pretty things and where I can plant a garden and live always."

"But you have just such a house right here in Pleasantville," said Uncle George, parting the branches to look at the cozy, white cottage standing back from the street with its trim lawn in front and its fruit trees and shrubbery in the rear. "What more do you want? Why do you long to climb up in trees and hide in caves and tents?"

"I don't exactly know," replied Ruth, slowly, "but I'd just love to build a play-house of our very own here under this tree."

"So'd I," chimed in Paul. "It would be great.

I could have all the fellows in and we could use it for a club-house and, when company came, for overnight, Ruth and I could sleep out here."

"I'll tell you what," exclaimed Ruth. "Only last night Father was saying that the house was really too small now that Paul and I are getting so big. And Mother said she thought we'd have to build an extension. Now,"—here Ruth's eyes grew very big and round and excited—"why, *why,* instead of building an addition onto the house, shouldn't we build a darling little play-house right here back of the grown-up house?"

"It wouldn't cost so very much more, would it?" asked Paul, who, in spite of being two years younger than Ruth, always thought more than she did about the money side of things.

"No," said Uncle George, slowly. "I don't see why it should, especially if I help you with it. I've built lots of 'grown-up' houses, and I think, for a change, it would be great fun to build a play-house."

"Oh, do help us to beg Father and Mother to let us!" cried both children.

"All right," agreed their uncle. "No time like the present. We must have a house that is warm and dry, which this lovely tree-house is not."

"And it must be sunny and have plenty of air, which the cave hasn't," said Paul.

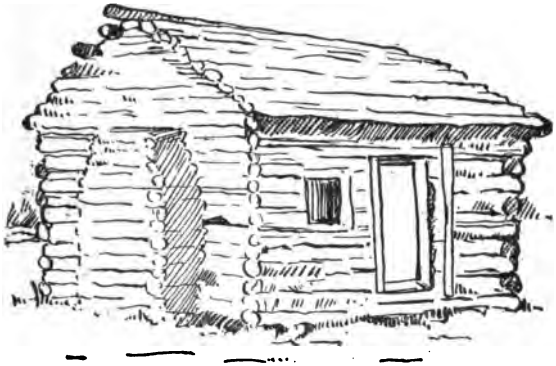
"And it must 'stay put,' which the tent doesn't," said Ruth.

"And it mustn't be full of a lot of other people, but must be your very own house, where you can be

alone if you wish and can invite your company when you feel like it," finished Uncle George.

"Oh, goody! Goody!" shrieked Ruth, as they all scrambled down to the ground. "It's going to be the loveliest, blessedest house that ever was!"

"That depends on the people who live in it, Ruth," said Uncle George, turning serious. "Abraham Lincoln lived in a wretched log cabin, but his mother's



brave, sunny nature made it beautiful, and Lincoln's life has made it sacred. I hope your cottage, if we build it, will be beautiful with happy thoughts and bright with fun and kindness. Now let's see who can get to the house first."

Off they all three ran and sank in a heap on the door-step just as Father came to the gate.

THINGS TO REMEMBER

Houses were first built for shelter from the weather and protection from enemies. Let us recall different

kinds. Tree-houses were built of branches in the tops of trees in jungles. They were a refuge from wild animals. They could be used in very warm climates only. Uncivilized people, in colder climates, once built huts of woven branches. They sheltered the people from bad weather and wild animals. They were uncomfortable, not strong, and could not be heated or ventilated well. Peoples who wandered from place to place learned to make tent houses, which were easily put up and taken down. Some Indians made their tents of animal skins. Some Arabs made tents of woven cloth. There were still other peoples—Indians of the Southwest, who learned to make bricks. With these they built houses against the cliffs in their country—one house above the other. They used ladders to get from story to story. All the Indians in a tribe lived together for protection against their enemies. Our ancestors in Europe also had to fear many enemies besides the wild animals. They built great halls, or castles, often with walls around them. A warrior, with his family and followers, lived together within the walls to protect each other. These castles were dark, cheerless and often cold in winter.

The first colonists in America had to fear Indians and wild animals. They made their homes of logs. Either there was a fort nearby or the houses were close together and a stockade of logs was built around the houses. Nowadays we have neither savage enemies nor wild beasts to fear. Sickness and bad weather are the enemies our houses must keep away. So we can have our houses far apart, with many large windows and of any material we desire. We can have them well heated and well ventilated, with many comforts of which our ancestors did not even dream. A modern house is more wonderful than any fairy palace when we begin to think about the things that are in it.

TO THINK ABOUT

Why do people need houses? For what do animals use their houses?

Where to-day do people live in tree-houses? What are the advantages of such houses?

What are the habits of people who make tent-homes? What peoples do you know of who live in tents? What kinds of climates do they have?

What kinds of homes do Indians of the Southwest build to protect themselves from their enemies?

Can you find out anything about the homes of other Indians through reading or visits to museums?

Why did our European ancestors build *stone castles* and *walled towns* with thick walls and narrow windows?

Read about these in a history to find out how they were lighted, heated, ventilated and kept clean. Then decide if you would like to live in a castle like that.

In what ways are good modern homes better than these other homes?

CHAPTER II

The Plan of the House

There is nothing else quite so hard in life as *waiting*. That was what Paul and Ruth thought all during supper time. They were so full of their play-house scheme that they could scarcely eat, but as soon as Father saw Uncle George, he had said, "You are just the one I want to see about that investment." Then he and Uncle George had begun to talk about stocks and securities and other incomprehensible things, until Ruth began to fear that Uncle George had forgotten all about the play-house.

But as they rose from the table, Uncle George said, "And now, John, there is something else that we must talk about—something very important, isn't it, Paul?"

"Oh, yes, lots more important than any old stocks and bonds," cried Paul.

"It's a perfectly gorgeous idea for giving us more room. You know you said we really *needed* more room," said Ruth.

"Yes, and it really won't cost any more than it would to build a wing onto the house," added Paul.

"And it will help to keep the house all nice and tidy, because we'll be playing out there all the time," exclaimed Ruth.

"Well, well, do put me out of my suspense and let's hear all about this marvelous idea," said Father.

So Father sat down in the big rocker with Paul on his knee, while Ruth perched on the arm of Uncle George's chair. Then they unfolded to Father the wonderful scheme, and after Uncle George had explained that he would help to plan and build it and that he could get all the lumber and fixtures cheaply, because he was an architect, Father said, "Well, if Mother is willing, so am I."

Both children rushed into the kitchen where Mother was sprinkling clothes and dragged her into the sitting-room. Then Uncle George had to explain all over again. "I think it would be a very sensible plan," said Mother. "It will mean an extra place to put company. The children can keep all their toys and things there. It is about time that they both learned something about housekeeping, and besides, I always wanted a play-house when I was a little girl and never had one. I think I shall enjoy it almost as much as Ruth and Paul."

"Oh, goody!" shrieked Ruth.

"Let's draw a plan of it," suggested Paul.

"All right," agreed Uncle George. "Get me a sheet of paper, Paul, please. Now how many rooms shall we have?"

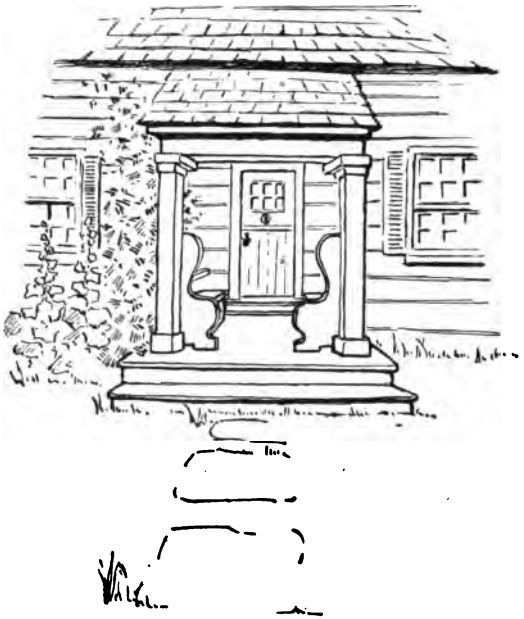
"Not many," said Mother. "I think two bedrooms and a play-room will be enough."

"Oh," sighed Ruth. "I hoped we could have a cunning little kitchen. Don't you think we might, Mother?"

"Oh, yes, do let's have a kitchen," begged Paul. "You know you said yourself, Mother, that every

boy ought to learn cooking just as much as the girls do."

"Well," said Father, "suppose we lay out a plan of the way we'd *like* to make the house and then later we can discuss the cost."



"I want a cunning porch with seats each side," said Ruth.

"One like this," said Father, holding up a rough sketch.

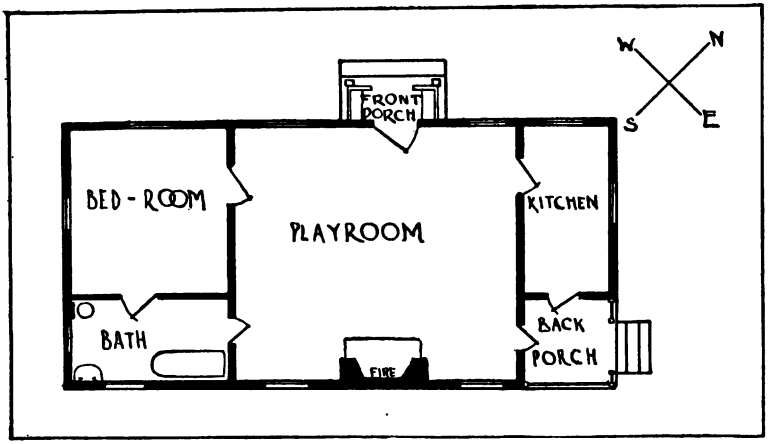
"I think the porch should lead right into a big sitting-and-work-and-play-room," said Uncle George.

"Oh, couldn't we have a fireplace?" urged Paul. "It's such fun to pop corn and roast apples and things."

"Perhaps we might, if we all turn in and help build it," said Father.

"Oh, we'll all work at it every day," assented Ruth, eagerly.

So, with suggestions first from one and then from another, Uncle George drew the plan of the play-house. It provided a fine big room where the children could work and play and Paul could sleep, a tiny



kitchen with a back porch off it, a bedroom for Ruth and a bathroom.

"I'm afraid it will cost a good deal," said Mother, "but it will leave Ruth's room in this house for a guest-room, and I'll turn Paul's room into a sewing-room—I've always wanted one."

"I can get all the materials at cost," said Uncle George, "and if we build it ourselves, it won't be very expensive."

"Dear me," said Mother, "how much more chil-

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dren have nowadays than they had when I was young. When I was Ruth's age, my sister and I used to make play-houses by laying out stones to mark off the different rooms. Our favorite place was under the old apple-tree, and we used to make furniture out of the twigs."

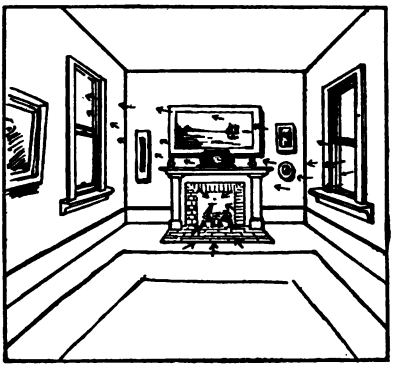
Paul had been looking at the plan. "We are going to have an awful lot of windows, aren't we?" he remarked.

"Yes," said Father, "because windows are very, very important. You see, Uncle George has put windows on two sides of each room and has placed the doors so that when they are open the air will blow right straight from one side of the house to the other. If a room has windows only on one side, like this, you see that the air just comes in a little way and then goes right out again. But with windows on opposite sides, like this, the cold air comes in down here, goes way across the room and out up here."

"But," said Ruth, "in the city, where houses are built in one long row, you can't have windows on two sides, unless you live on the corner."

"No," agreed Mother, "and then all you can do is to open the window top and bottom, so as to make an

entrance for the fresh air and an exit for the bad air. And you can open the doors through the house, so that the air can blow through from front to back or back to front, whichever way the wind happens to be coming from."



"It won't be so airy as my tree-house," said Ruth.

"No, but it will be drier and more comfortable. And it will be much nicer than the cave, won't it, Paul?"

"Yes," said Paul, "and we can cook all kinds of things over the open fire."

"There's another good thing about an open fire," put in Uncle George. "It is as good as a window for supplying fresh air. Sometimes, when the fire is out, fresh air comes *down* the chimney. And when the fire is going it sends the used air *up* the chimney. One of the very first things in planning a house is to be sure that you have plenty of air and sunlight."

"Oh, do let's go outside and decide just where to put the house," cried Ruth.

But Mother pointed to the clock. "Eight o'clock, Ruth," she said, "and to-morrow is a school-day. Off to bed with you. You can build dream castles all night."

THINGS TO DO

See if your schoolroom has enough window space. Architects say that the space taken up by windows should be one-fifth of the floor space. Measure your windows and your floors and see if you have enough light.

Wise builders also say that each person in a room ought to have 3000 cubic feet of fresh air every hour. Can you find out the amount of air your schoolroom contains? Can you find out how much air all the people in your class require in one hour? *Now,* can you find out how many hours the air in the room will last the people in it without changing or letting fresh air in? Does this explain why we either must have our windows always open a little or else have air pumped in from the outside?

If your school has fresh-warmed and washed air pumped in from the outside perhaps your teacher will take you to see how this is done.

THINGS TO REMEMBER

A well-planned house has many windows. These are placed on two sides of a room whenever it is possible, instead of just on one side. Doors, too, are placed so that when doors and windows are open, air can blow through the rooms. Fresh air in this way reaches every part of the room, instead of the window side only. When windows must be on one side only, they should be opened at top and bottom for ventilation. The warm air in the room rises, goes out at top, while colder fresh air comes in at bottom.

An open fireplace is another way to let air into a house. When there is no fire the cold outside air drops down into the room. When there is a fire the warm air over it rises up the chimney and draws the used air in the room up after it. Sometimes you can hear the air rushing up the chimney when the grate "draws" well.

TO THINK ABOUT

How could we air our schoolrooms most thoroughly? Our bedrooms in the mornings? Are windows and doors well placed?

How can you open your windows at nights, so as to get the best ventilation without a draft?

Can you tell why grates are said to be "healthier" than steam heat?

CHAPTER III

The Site of the House

As Uncle George opened the Westons' gate the next afternoon he was seized on either side by an eager hand, and two excited voices exclaimed, "Do come right away and help decide where the house shall stand."

"Let's begin digging this very minute," cried Paul.

"Not so fast, young man," protested Uncle George. "I want to build this house well, but I also want you to understand just the *reason* for everything we do."

"Oh, yes," agreed Ruth. "When I'm grown, I'm going to be an architect. Mother says there are some very good women architects. So I want to know the *why* of every single thing about our play-house."

"Well, then," said Uncle George. "There are several things that everyone—not only architects but *everyone*—ought to know about houses. And one thing is the right and the wrong situation for a house. I wonder how much you youngsters know about it."

"I know one thing," said Paul. "Our cave was so close to Peckham's Swamp that we got all bitten up with mosquitoes. So I'm sure a house oughtn't to be near a swamp."

"Right," nodded Uncle George. "Mosquitoes live in damp places. Probably you have learned at

school that some mosquitoes carry malaria and others can give us yellow fever—that is, they can carry the germs from a sick person to a well one. So we don't want any damp, mosquito-breeding swamp or standing water near our house."

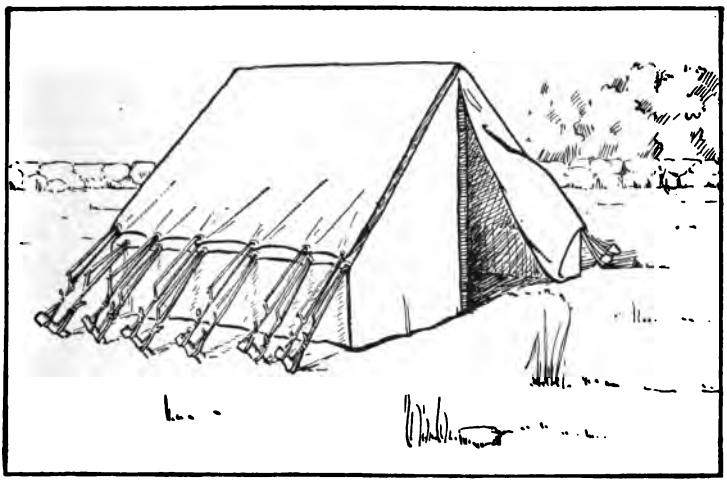
"Well, that's all right, anyhow," remarked Ruth. "There is no swamp near here. Had we better put

the play-house in front of the big house or back of it? I think it had better be behind it, so as not to get all the dust from the road."

"A good idea," said Uncle George. "Now just where shall it stand?"

"Let's put it right under the cherry-tree. That will make a nice shade, so it won't be baking hot like the tent we had last year."

"And the tree is tall enough so as to let the air and sunlight come in," added Uncle George. "Yes, under the tree ought to be a good place, but let's look

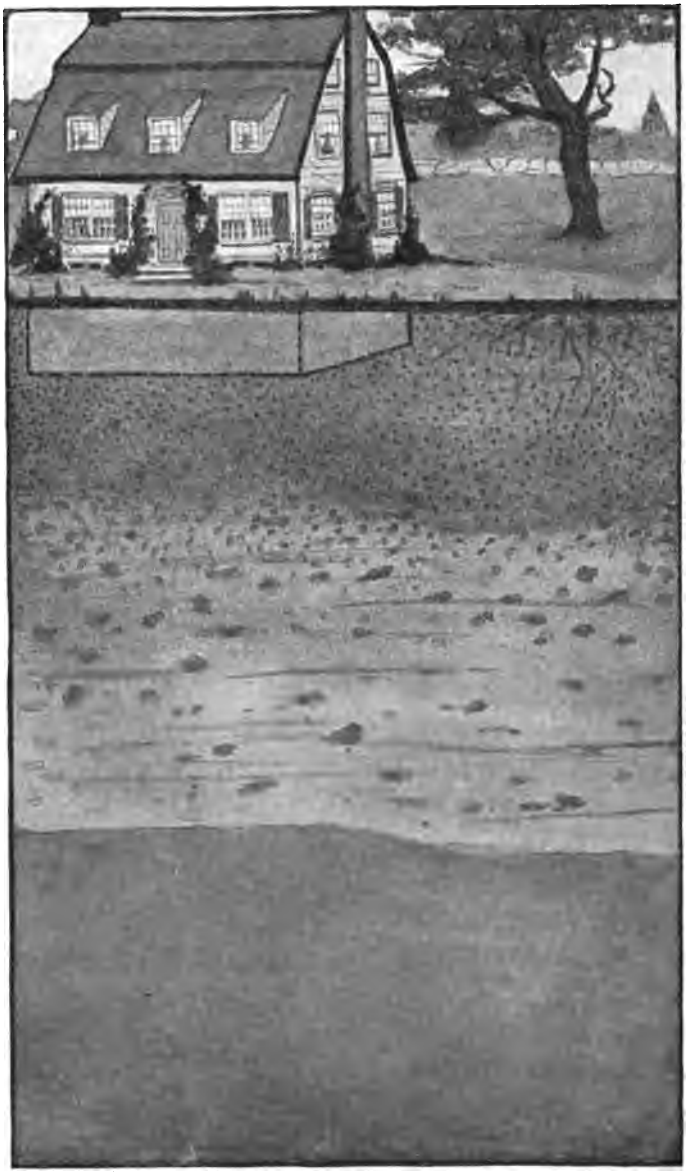


and see whether it's as good a place *underground* as it is overground."

"What do you mean?" asked Paul, knitting his forehead. "How can we tell what it's like underground?"

"We can't tell except with the help of people who have studied and examined the ground. Here is a map of what lies under your Father's house and grounds. You see on top there is a layer of dirt, or loam; next comes a thicker layer of sand. This gets coarser and coarser until it is gravel. Finally we strike a layer of clay. Now you know the earth is like a big sponge full of water."

"Oh, yes," cried Ruth, "Mother explained all that



to us last summer. The rain soaks down through the dirt and sand and gravel, but when it comes to the clay it can't get through, so it lies there and makes 'ground water.' That's where the water for wells comes from."

"That's it," said Uncle George. "Well, then, you can readily see that we don't want to dig the foundations of our house in a place where the ground water is very near the surface, or else the cellar will be damp."

"Well, why does that hurt?" asked Paul. "So long as we don't live in the cellar?"

"It matters in several ways," explained Uncle George. "In the first place, the air in the house is warmer than in the cellar, and you know that warm air rises, don't you?"

"Oh, yes," said Ruth. Oftentimes, over a chimney you can see the warm air rising, and I've often seen it in the summer time over the meadow, rising in a wavering, shimmery sort of stream."

"Well, then," continued her uncle, "as the warm air rises, the cold, cellar air goes up to take its place in the house. Now, if the cellar is wet, this rising air will be very damp. Damp air is not always bad, but a constant stream of cold, damp air is not very healthful. Besides, in a damp cellar, mold is likely to collect and any vegetables or fruit stored there are apt to decay, and you know that decaying vegetables are not a very pleasant sort of perfume for one's house."

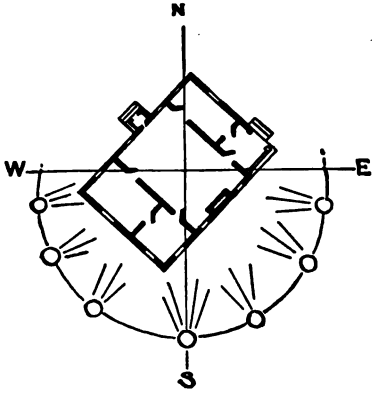
"But," said Paul, who had been examining the

map. "It looks as if the water were way, way below our house cellar, doesn't it?"

"Yes, it is," replied Uncle George, "a good fifteen feet—and here, in the spot that we have chosen for our play-house, under the cherry-tree, the ground is sandy and dry, so that I think we can be sure that we have chosen a very good spot for our play-house."

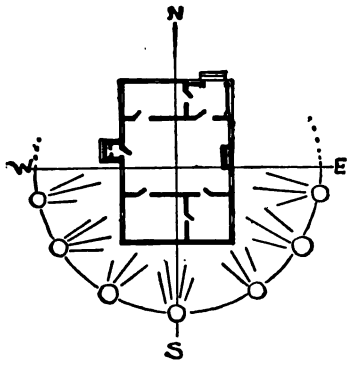
"And now," said Ruth, "which way shall we have the play-house face? The big house faces west, and I think that is nice, because you can stand on the porch and watch the sunset."

"I think," suggested Mother, who had just come out to join the group on the lawn, "that it might be wise to have the entrance on the west, because that would make the kitchen face north, which would be less sunny in summer and would also give Ruth a nice, sunny bedroom in winter."



"Now my suggestion," said Uncle George, "is that we don't make the house face *directly* west, but that we set it like this with the porch facing northwest and the corners of the house p o i n t i n g north, south, east and west. You see that this piece of a circle which I have drawn shows the course of the sun in winter, rising and setting a little south of the exact east and west. If the house faced directly west,

you can see that Ruth's room and the bathroom would get all the sunshine in winter. The dotted lines show how, in summer, the sun rises and sets a little *north* of the exact east and west line. You can see that by setting the house 'cater-cornered' you give each window a chance to get a share of the sunshine, instead of having one room get it all."



"That's funny," exclaimed Ruth. "I never thought of that before. But how can they manage it in the city? If a street runs straight north and south, or east and west, it would look awfully funny to see all the houses set with their corners to the sidewalk."

"Yes," agreed Mother, "so it would. But in a number of the newer cities the streets have been purposely laid out running diagonally, so that the houses can get some sun in each room."

"Well," said Paul, "I never thought it would take so much fussing to build a house. I thought you could just go ahead and dig anywhere."

"Why, Paul," said Uncle George, "don't you remember how long Mr. and Mrs. Oriole took before deciding on the best place to build their nest?"

"Oh, yes," cried Ruth, "they sat and chirped and talked and visited all the different trees for two whole days before they began to build at all. And finally

they made the loveliest nest right here in the cherry-tree. But they didn't come back this year—you can see the empty nest now."

"Well," said Mother, "let's hope that your house-keeping will be luckier than the orioles' and that you can use your house for a great many years to come."

THINGS TO DO

Find out in what direction your house faces.

Find out how many rooms in your house get the morning sun. The evening sun. Note what time the sun enters the room you are in most. Note the hour the sun leaves the room, and figure how many hours of sunshine the room gets. Which rooms in your house have the most hours of sunshine?

Go down into your cellar and make a list of the ways that dampness is prevented there. Examine all of your premises to see if there is dampness anywhere.

THINGS TO REMEMBER

A comfortable and healthful house must be built in a healthful place. We must consider how clean and pure the air around it is, how much sunlight enters the rooms and how well drained is the ground on which it is built.

Marshy places, little puddles, weed-grown and damp vacant lots nearby are homes for mosquitoes. Mosquitoes, not night air, spread malaria. No site is good which is damp. There should be no gutters or basins around a house where water can collect and stand.

Dusty air, filled with street dirt, is bad. No dwelling house should be so close to the street that the air inside is always dust-laden.

The ground on which the house is built must be well drained. Then water that falls on the surface of the soil will be carried away from the house and its foundations. We can find out about this from the city engineer or the

State geologist. Poorly-drained ground causes damp basements. The air from such damp basements will find its way into the house, carrying with it disagreeable odors, and sometimes uncomfortable chilliness. Things stored in damp basements mold, mildew or decay, since the little living germs thrive in moist, dark places.

In our latitude (Do you know what this means?) the sun in winter rises and sets a little south of east or west. Therefore we must arrange our houses so that one side does not get all the winter sun. The best placing of a house is to turn the corners towards the cardinal points. What are these? Make a diagram with a house placed so. In what direction will the street the house faces, run? Sunlight prevents germs from growing. It warms and dries the air. Therefore we need as much as possible in every room in the house.

TO THINK ABOUT

Examine the premises for a block around your home. Your school. Make a map of the block and put in with blue crosses the damp places. How many are there near your home? School? How many stopped-up pipes, basins, barrels, gutters with standing water? Are there mosquitoes near-by? What should be done to improve conditions? What can you do?

How does the city aim to protect people from dusty air which might be blown into our stores or homes? Is your house surrounded with clean air?

Examine your basement and find out if it is damp. Why do we object to damp cellars?

Point to the north. Use a compass if you are not sure. How does your house face? How does your street run?

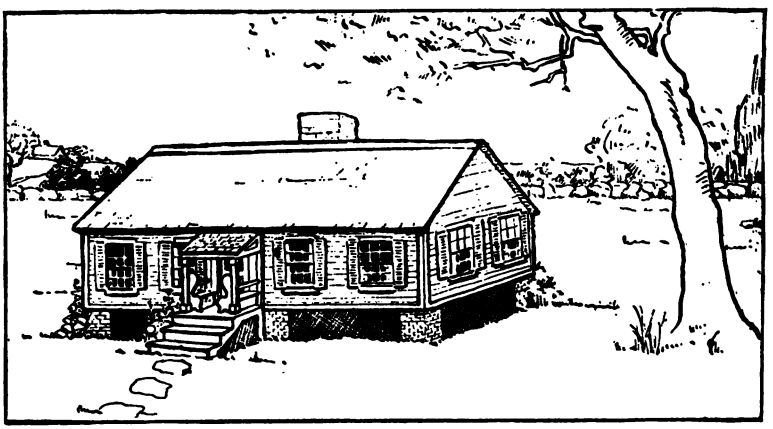
Why is it hard to grow plants in north windows? Name all the disadvantages you think of from having sun cut off from your yard and house. How should a house be placed so that the rooms may all get a share of the sunshine?

CHAPTER IV

Laying the Foundations

The weeks that followed were full of excitement and interest for the Weston family—full of hard work, too, for although Father hired a man to dig the cellar and do some of the heaviest work, there remained plenty to keep Father, Uncle George, Paul and Ruth all busy.

Father had suggested that instead of a cellar they might raise the house above the ground on brick columns, with lattice work between. "That," he



said, "will let the air blow through under the house and will keep the ground from being too damp." But Mother had insisted on a "really, truly" cellar. "While we are about it," she declared, "we

might as well have not merely a make-believe play-house, but a real little house that can be used as an overflow to put extra company in and that will be comfortable in both winter and summer. Do you remember two years ago, when Paul had the scarlet fever? How fine it would have been if we had had a little house then to keep him in so that the big house would not have had to be quarantined."

So the cellar had been dug, and Paul had noted with interest that the soil under the cherry-tree was almost like sand, just as the ground-map had shown it. "Why is it good to build on sandy soil?" Paul had queried. "Yes," chimed in Ruth, "last Sunday Mr. Horton read from the Bible to us about the man who built his house on the sand and the winds and the floods beat on the house and it fell, but the house that was built on a rock stood firm."

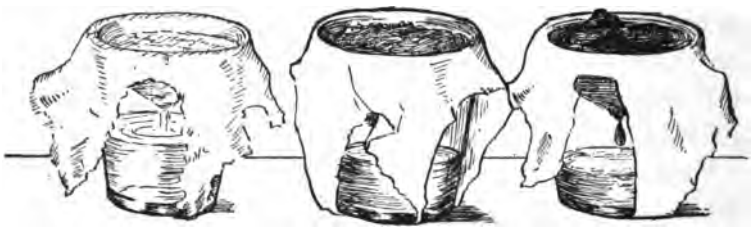
Father laughed. "I fancy that has puzzled older people than you," he said, "and I am not sure that I can give you a perfectly correct explanation, but I think Jesus had in mind the sandy valley of the River Jordan. The Jordan is like a mountain torrent rushing along in a sort of trough made by its clayey banks. When the snow melts, the river overflows its banks. Sometimes a day of rain will make the river suddenly rise four or five feet. So when the Bible says, 'The rain descended and *the floods came,*' you must think of the Jordan at full flood sweeping away the houses that were built on the sandy plain. But a house built on a rock standing above the plain would be safe from the flood."

"I see," said Ruth, slowly, "but here in Pleasantville we don't have any river to flood us and wash away our houses."

"But," persisted Paul, "why is sand *better* for our house? I should think rock would be just as good, or dirt."

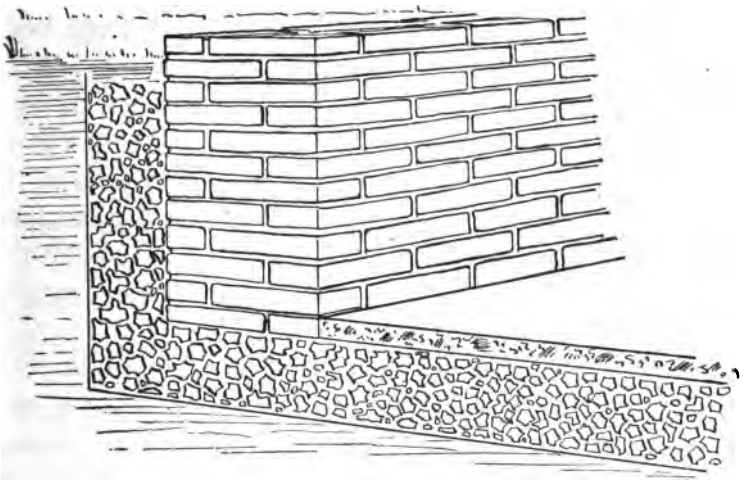
"I can very easily show you," said Father, "if you will get me a square of cheese-cloth and three tumblers."

A moment later Paul returned and Father cut the



cheese-cloth into three squares and put one over each tumbler. Into one piece of cloth he put several spoonfuls of sand, into another some dirt and into a third a lump of clay; then he slowly poured a little water upon each. "Now you can see," he said "that clayey soil holds water, that ordinary dirt lets it drip through a little more quickly, but that in sandy soil water runs away almost at once. You can see why it is good to build your house where after a rain

the ground will quickly dry and where, if a drain-pipe should break, the filthy waste-water will run away quickly instead of remaining in the ground a long time. Of course, a broken drain ought to be mended at once, but until it is mended the sewage should drain away as quickly as possible. I have heard that under a certain old English palace the ground is so soaked



with sewage that the Queen was never willing to stay there, the smell was so disagreeable."

A few days later the cellar was completed. The walls were made of smooth brick, with a layer of broken stone between them and the earth. Broken stone was also put in the bottom of the cellar space and cement over it to form the cellar floor. "Now," said Uncle George, " if we should have a rainy season, the water will drain away from our house and we shall always have a good, dry cellar."

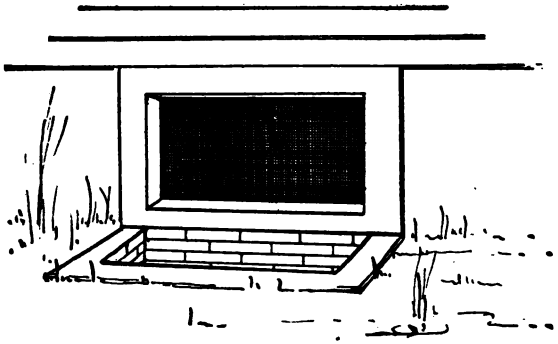
Ruth looked admiringly at the smooth walls. "My!" she exclaimed, "Up at Dorothy Frost's house we went down in the cellar one day to get some apples and the walls were dreadful. They were awfully rough and dirty."

"The Eskimos," said Uncle George, "have an odd way of smoothing the inside walls of their snow-houses. When the house is all built, a fire is made inside and kept burning until the snow walls begin to melt. Then the fire is put out, or else a hole is made in the roof to let the cold in, and Presto! in a moment the hut walls are beautiful, shining ice. It makes the snow-house much stronger and Mr. Stefansson, the great Arctic explorer, says that it is also pleasanter to have a hard wall and not to brush off a bushel of snow every time you happen to brush against the ceiling."

Another thing that interested Paul was the cellar windows. There were two on each side, and for each window Father made a carefully-fitted screen. "Now," said Paul. "I guess that gray cat of Frosts' can't get in and eat all our cream!" Paul had never quite gotten over his disappointment the summer before when, on an especially hot day, they had planned to make ice-cream and he had gone down cellar to find Billiken, the Frosts' cat, washing his face beside the empty cream jug.

"No," laughed Father, "Billiken will have to be pretty clever to get through these screens, and, what's more, so will Mr. and Mrs. Fly and all the little flies. Lots of people screen all the upstairs windows and

then wonder where the flies come from, when all the time the cellar windows are wide open."



"But they could just as well close the cellar windows," said Paul.

"No," said Father. "We want a fresh current of air blowing through the cellar to keep it sweet-smelling and dry."

"The Frosts' cellar windows were all shut when I was down there," said Ruth, "and they were so dirty that no light could come in, and there were piles of everything lying around and——"

"There, there, Ruth," said Mother. "It is not nice to visit people and then talk about them afterward. Never mind the Frosts. We have only our own house to attend to. And I shall expect you and Paul to keep this cellar just as clean and nice as it is now—no old rubbish, no dirt, no smells. Every spring, or oftener if it needs it, we'll whitewash the walls with lime—I know Paul will enjoy slopping the whitewash around—and we'll never be ashamed to have anyone come into *our* cellar, will we?"

"No, indeed, we won't," chorused both children.

That evening Father looked up from his reading. "Look here, folks," he said. "Here is a picture that will interest you. Here is a palace that was built about six hundred years ago and built under much greater difficulties than we have in building your house."

"Whose palace was it?" asked Ruth.

"It was the palace of the Duke or Doge of Venice. You know that Venice is really built on a number of mud banks, with the water of the sea flowing among them. Many of the streets of Venice are canals in which the people use boats instead of automobiles and cars."

"But how could they build the houses on soft mud?" asked Ruth.

"They dug down through the mud until they came to a layer of clay. Then they drove great logs, standing on end into the clay close together. On this they laid a wooden platform and on this platform the houses were built."

"I think they were pretty wise to know how to do all that six hundred years ago," said Paul.

"They were," said Mother, "very wise and very hard working, or we should not to-day be still admiring their beautiful buildings."

"Well," said Ruth, turning away and looking out to where the foundations of the play-house rose under the cherry-tree, "I think our house is going to be just as nice as the Doge's palace and not half so sloppy!"

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THINGS TO DO

Try Mr. Weston's experiment. Visit the basement of your house. Make a list of the things about it that make a good cellar. How could it be improved?

THINGS TO REMEMBER

The first floors of houses should not be built directly on the ground. Houses are sometimes placed on forms raised above the ground. Around the platform a lattice-work is built to keep animals out, but to permit wind to blow through. Such homes would be too cold for northern climates.

Well built houses should have stone or brick foundation walls extending up from the cellar. The best way to build such a wall is shown by the picture. Sandy soil is the best soil to build on, because it allows water to drain through it most quickly. For the same reason crushed rock is placed under the cement floor and under the brick or stone wall. Since windows are made in foundation walls to let air in, they should be screened to keep flies and animals out. Inside walls should be smoothly finished. They should be whitewashed, because the white walls make a cellar light, and because the lime helps to keep the cellar sweet, dry and clean. A well kept home must have a well kept cellar.

THINGS TO THINK ABOUT

What is the difference between the amounts of water that sand, clay and loamy soil hold? Why, then, is one kind better than another for a foundation?

Examine the foundation of a new house going up. Is it built like the diagram in the book? Why do they make it this way?

Why should we screen our cellar windows and keep the cellar doors shut if they are not screened? Why have cellar windows open? Are yours at home open?

Why do good housekeepers whitewash cellars?

CHAPTER V

How the House Was Heated

"And now," said Uncle George, "how is the playhouse to be heated?"

"Heated!" exclaimed Father, mopping his forehead. "The idea of planning about furnaces and stoves on a scorching day like this!"

"But it isn't going to *stay* scorching, Father," said Ruth, in her most grown-up manner. "And if it is to be a real little house that we can use all the year and put extra company into when the other house is full, we'll have to have some sort of stove or something."

"I'd like to live in Italy where it's always warm," said Paul.

"Always warm!" cried Father. "Don't you know that winter in Italy is cold and disagreeable? And the worst of it is that instead of a good furnace or radiator, all you have to keep you warm is a sort of little affair something like the stoves that chestnut-sellers roast their chestnuts over."

"Oh, yes," said Ruth. "I remember that at the Museum Miss Scott showed us a stove that was dug up in Rome. She said they burned charcoal in it, and it had handles so it could be carried from one room to another."

"Well, the Italians use just that sort of little stove or brazier, still," said Father. "It gives just enough

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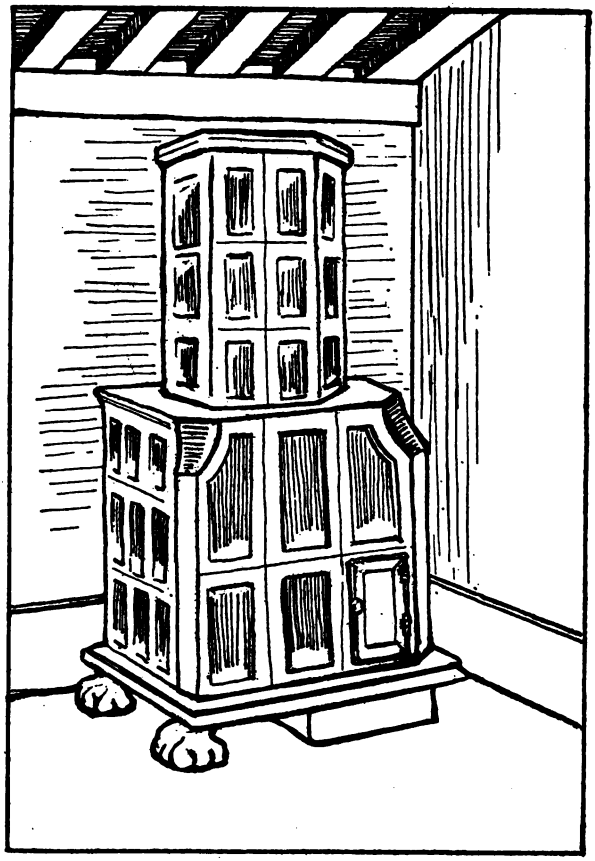
warmth to make you realize how cold you are."

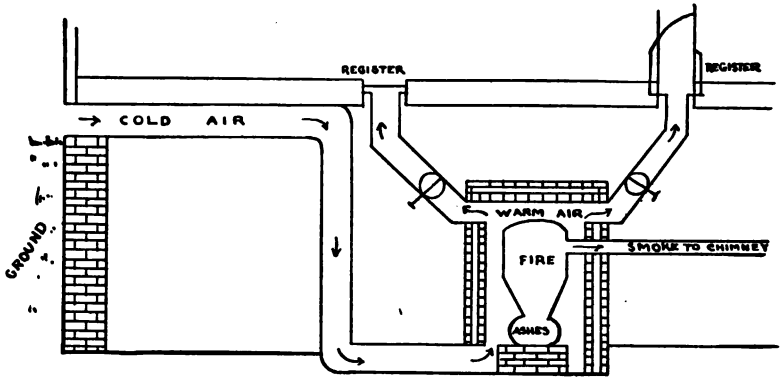
"When I was abroad, a good many years ago," put in Uncle George, "my bedroom was heated by a



huge stove that went almost up to the ceiling and was made of porcelain. It never grew as hot as one of our iron stoves, but it kept up a steady warmth that was very comfortable."

"Of course," said Mother, "we are to have an open fire in the big play-room, but there must be some heat in the bathroom or the pipes will freeze."

"I think," said Uncle George, "that the most satisfactory plan for as small a house as this, will be to



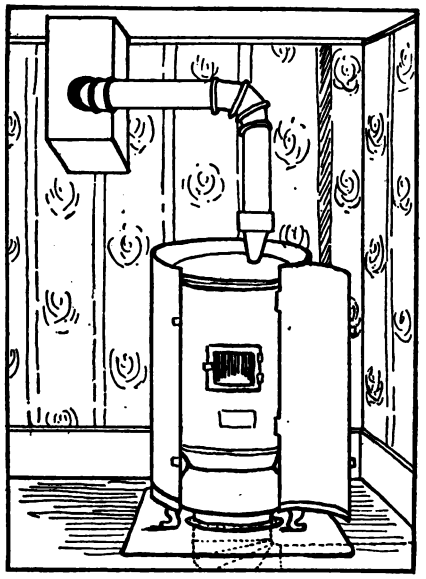
have a furnace in the cellar, which will send warm air up into each room through registers."

"I don't think I understand just how a furnace works," said Ruth. "Do you suppose Paul and I could manage it?"

"With a little advice and help, I think you could," replied Uncle George. "You see, Ruthie, a furnace is really not so very hard to understand. I'll draw you a diagram of one. Here, inside, is a stove that holds the fire. Around the stove or fire-box, is built an outside wall. Between the fire and this outside wall is a space filled with air. Through this pipe the cold air comes in from outdoors. The fire warms it and it goes up, for you know hot air always rises, into these pipes and so through the registers into the

rooms upstairs. Through this other pipe the smoke goes off outdoors. With a little practice, it is not hard to manage a simple furnace like this."

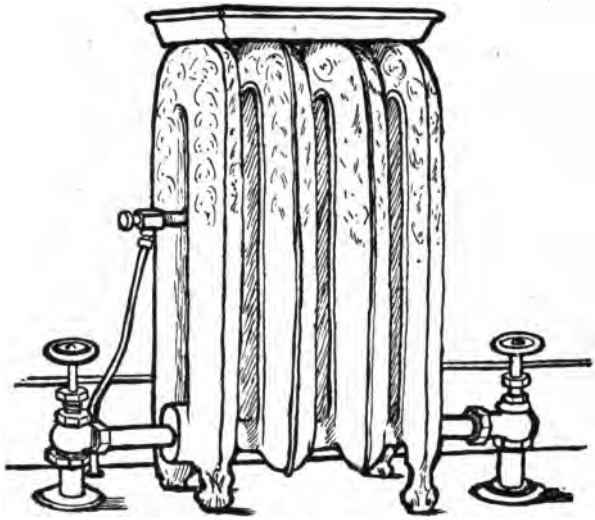
"When I was a boy and went to a little country school," said Father, "we had an old-fashioned stove that used to get almost red-hot, sometimes. The boys who sat next to it used to take off their jackets and complain of the heat, but I was seated near the door and I used to be blue with the cold. Any boy who whispered or was disorderly used to be called down in front where the teacher could watch him. Many a time, when I was shivering, I would whisper, so that the teacher would call me down front nearer to the stove. Finally, though, some one of the school trustees who knew a little about right and wrong ways of heating rooms had the stove jacketed."



"What does that mean?" asked Paul.

"Why a sort of metal fence was put around the stove. Under the floor a pipe, like the cold-air pipe in the furnace, brought in fresh air from outside. This air was heated, just as it is in a furnace, and then

went out into the room. After the stove was jacketed, we were all much more comfortable. It gave a supply of fresh air which circulated all



through the room instead of roasting some while others shivered."

"Is a furnace better than steam heat?" asked Ruth.

"Sometimes it is and sometimes not," replied Uncle George. "It all depends on the size of your house, where you live, and a good many other things. There are just three things to remember in heating and airing a house. The house must not be too hot, nor uncomfortably chilly. We'll buy a thermometer for the play-house and see that the rooms are kept between 60 and 68 degrees. Secondly, the air must keep moving—fresh air must keep coming in and the

used air must go out. And thirdly, the air must not get too dry. Furnaces usually have a place to hold water, so that the hot air may be moistened."

"Oh, yes," said Ruth. "Mother always keeps a pan of water on each radiator; don't you, Mother?"

"Yes," smiled Mother, "and another and much prettier way to moisten the air is by having growing plants. The air sucks moisture from their leaves and from the moist earth.

"Goody!" exclaimed Ruth. "We'll have a lovely hot-house right in the play-room."

"All this talk about heat makes *me* feel like being moistened," said Father. "Paul, what do you say to our going in and making the folks a big pitcher of lemonade?"

THINGS TO DO

Find a small healthy plant outdoors or indoors. Arrange a paper around the bottom of the stem, covering the earth. Then place a tumbler over it, and note what forms in the glass. Also get a glassful of water and set another tumbler over the one full of water. Do these experiments show you how air may get moisture in it?

How is your home heated? If by a stove find out how the air about the stove is moving. You can do this by throwing tiny bits of soft feathers into the air. Try them around windows and doors, too. Can you make a drawing of the room, stove, windows and put in some little arrows to show where the feathers go?

If you have a furnace go look at it and try to make a picture of the inside and outside of it. How does the hot air get to the rooms? Test the air in the room with feathers, over the register, by windows and doors to see

how it is moving. Do you think furnaces are better or worse than stoves? Why?

Can you tell how the heat from your furnace is regulated?

THINGS TO REMEMBER

Heat is supplied in most modern American homes by grates, stoves, furnaces or steam pipes. Stoves and grates usually make one part of the room very hot, leaving the rest cold. Study the picture of a jacketed stove in this chapter and learn why such a stove makes the whole room warm. Notice that a furnace is like a large jacketed stove. The fresh air heated in the jacket of the furnace is distributed to the other and cooler parts of the house. This is because cold and heavier air coming into the jacket pushes the light warm air *up* and *away*.

However a house is heated, remember these points:

(1) There should be a good thermometer in the house. The temperature of the living room should not go below 60° F. nor above 68° F. Bedrooms may be colder.

(2) The air in a room should be kept moving gently all the time.

(3) The air must be kept moist. This can be done by having plants in the room or basins of water on radiators and stoves.

TO THINK ABOUT

How does warm air behave, according to your tests? Cold air? How is the air around a hot stove moving?

How does the air move around a jacketed stove? Why does this kind of stove heat more of the room than a plain stove?

Draw a picture of a furnace to show how the hot air gets upstairs, if you can.

What has the temperature of your schoolroom been every day for the last week? Of your living room at

home? How near to the correct temperature are these temperatures you have observed? If the room feels too cold when the temperature is correct, what is the *wise* thing to do?

How can you be sure that the air in your room is in motion? How could you be sure the air in your room was being moistened?

What are three requirements of good heating?

CHAPTER VI

Something About Drains

"Houses are something like people, aren't they?" said Ruth.

"How are they?" queried Paul. Paul was not so fond of imagining things as Ruth and often called her fancies silly.

"Well," Ruth replied, "if a house is much good, it has to be strong and straight, and it needs air and sunshine. And it has to have water and light, just as we do and——"

"And it isn't good for it to have 'wet feet,'" put in Mother, looking up from her sewing. They were all three sitting under the cherry-tree near the play-house, which really began to look like a house now, though Father said it was only just begun and that finishing a house was the hardest part of it. "Another thing about a house that is very much like a person," continued Mother, "is that, to keep clean, healthy and fit to live in, it needs lots of water, and that means that there must be a way of getting rid of the dirty water."

"Out on Uncle Silas's farm," said Paul, "they used to just pitch the dish-water out onto the ground by the kitchen door."

"That is a very poor way," said Mother. "Of course, in the country, people haven't always what they would like, but any farmer can dig a drain to carry off the sewage from his house. When the cellar

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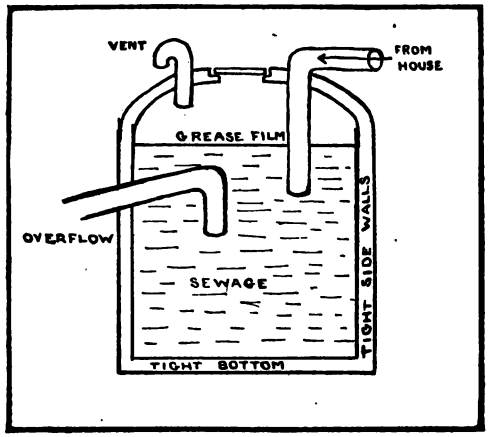
of your play-house was being built, you saw Uncle George lay a pipe, didn't you?"

"Oh, yes," said Paul, "he dug a trench all the way from here over the big house and laid a drainpipe in it. It joins the pipe that belongs to the big house, and he explained to us that every house on the street



has a drain pipe and all the drain pipes run into the big sewer under the street."

"I'm glad you understand," said Mother. "Well, in the country, there is no big sewer for each house drain to empty into, so a farmer who wants his grounds kept clean and sweet-smelling lays a drain and lets it empty into a cesspool some distance from the house."

"What's a cesspool?" asked Ruth.

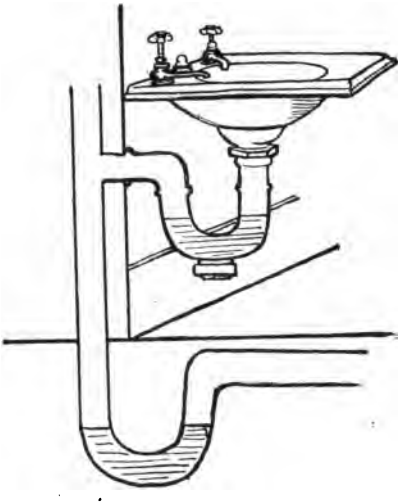
"A cesspool," replied Mother, "is simply a tank where sewage can decay and do no harm—that is, it does no harm if the tank is well made

and does not let the sewage leak through into the ground and fill it with germs. Sewage may not contain any disease germs, but it is always smelly and unpleasant and it *may* hold the germs of typhoid fever and other serious diseases. The tank should be made of brick and cemented, so that it is water-tight. In this tank the sewage will decay, and after it is entirely decayed the gas and liquid, though they may not smell quite pleasant, will not cause any disease. If you look at a picture of such a tank, you will see that the sewage comes in through a drain at one side and the gas and liquid go out through a pipe at the other side. This pipe carries them off underground to some distance, but they have no disease germs in them. The germs were killed in the tank."

Paul had been examining some of the pipes which the plumber had left behind on the porch. "Why do they make a bend in the pipe like this?" he asked.

For answer, Mother drew a little sketch with her scissors on the dry ground at their feet. "Here," she said, "the dirty water runs down the pipe, followed by the clean water with which we wash out the tub or sink, or toilet, or whatever the pipe leads from. It flows down and into the drain and so into the sewer or cesspool. But, as you know, sewage smells bad and we want to keep these disagreeable smells out of our house. So just under the tub, or sink, or toilet, there is a bend like this in the pipe and another bend where the pipe joins the drain under the floor. When the water flows down the pipe, some of it always stops at these bends—plumbers call them traps, because

they catch and hold the water. The water in the trap acts as a stopper to keep the bad smell from coming back up the pipe into the house."



"I should think," said Ruth, "that if any string or rag or anything went down the pipe, it would catch in the trap."

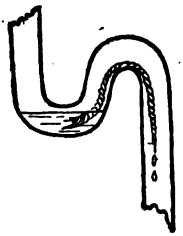
"It does," said Mother, "and that is one reason why you should never throw things into any basin or sink or toilet. They sometimes actually stop up the pipe and sometimes they interfere with the stopper of water that keeps the bad smells from coming up."

"I don't see how just a little piece of string or rag could do that," said Paul.

"Get me an empty tumbler and one with water in it and I'll show you," said Mother.

Paul came running back with the tumblers, and Mother set them side by side. Then she cut a strip of muslin, wet it, put one end into the tumbler of water and the other end into the empty glass. "Now watch," she said. The children bent low over the glasses. Water began to drip from the cloth into the empty tumbler. Very slowly, the water in the full glass began to sink, low and lower, while the glass that had been empty slowly filled.

"Now that," said Mother, "is exactly what happens when a string or piece of rag or hair gets into



the plumbing. The water runs up along the rag, or whatever it may be, over the bend in the pipe, just as it did over the edge of the glass, and on down the pipe just as it did into the other glass. Then what becomes of our water-stopper that was to keep out the smells?"

"Why," said Paul. "I see. It just runs all away down the pipe and there is no water to keep the smells from coming up."

"What is this sort of knob on the pipe for?" asked Ruth.

"That unscrews," Mother answered, "so that if anything is caught in the pipe, or if anything valuable should go down it by mistake, it can be opened. I had a friend who discovered, after washing her hands, that the diamond was gone out of her ring. She was ready to cry, but her husband unscrewed the pipe and there in the trap lay the diamond."

"Wasn't that lucky!" exclaimed Ruth.

"Indeed it was," said Mother. "Another reason for having the trap fixed so that it can be opened is that beneath sinks the trap often gets full of grease

from the dishes and pots. When grease is hot it is liquid, you know, but when it gets into the cold pipe it cools into a solid cake. Often when the pipe is stopped the plumber will take a whole handful of grease out of the trap.

"Is that why you told me not to pour the grease from the frying-pan into the sink?" asked Paul.

"Partly because of that and partly because we never waste any grease, but use it again or make soap of it," said Mother. "You see, being thrifty really helps in being clean and being healthy, for wastefulness is likely to mean a houseful of unused things that collect dirt, a garbage pail full of decaying food and pipes full of valuable grease."

"Suppose there isn't any plumber and you can't get the pipe open," said Ruth.

"I pour a lot of very hot water with washing soda in it down the pipe. The soda turns the grease into a sort of soap and the hot water washes it away, down the pipe. By the way, if you ever unscrew a trap, be sure to have a pan underneath, or you will have a flood of water on the floor."

"Dear me," exclaimed Paul. "Seems to me plumbing is lots of bother. I think I'd rather be an Indian and just wash in a brook and not bother with any old pipes."

"All right," said Ruth, promptly, "you can go and live like an Indian with Jim Nixon, and I'll keep house here. I just love the play-house—pipes and all."

THINGS TO DO

Try Mrs. Weston's experiment. Have you ever seen liquids run up through tiny pores in paper or cloth? Anywhere else? Scientific people call this capillarity. It helps us blot our letters, burn oil through lamp wicks, helps plants get water from soil.

Try these experiments also. They will help to understand this chapter. Collect two tumblers and a piece of clean rubber piping. Fill one tumbler with water. Place this tumbler on a pile of books and stand the empty tumbler below it. Then put the rubber tube in the glass of water and suck on it till the tube is full of water. Keep one end *under water* in the first glass. Hold the other end shut and lower this end into the empty tumbler. What happens? You have made a siphon. Have you ever seen one used? For what? Do you notice that by it you can make water run "up hill" over the bend in the tube? Find a siphon in the kitchen or bathroom plumbing. Experiment with your siphon to find out what will prevent it from working well.

If your teacher can get you a "thistle" tube and can put two bends in it like a letter N you can then see how a water-trap works. Pour some colored water quickly into the thistle end of the tube. How does the water act? Have you a siphon? Find the "trap" that catches the water. Do you see that it would act like a stopper to keep back the smells?

THINGS TO REMEMBER

Sewage and all waste water must be removed from our homes. In the city the sewage from the house is gathered into a drain pipe. This drain pipe runs underground to the street sewer. This sewer joins the great main sewers which carry off the waste material.

In the country it is wise to have drain pipes also. These drain pipes should carry the sewage into a cesspool.

The cesspool is a tank underground with brick and cemented walls that must not permit any sewage to escape into the soil. Sewage may contain typhoid or other disease germs. We know that these may make water supplies dangerous if they get into the ground and water. If sewage is kept in a tight cesspool the sewage decays and is changed into gas and water. The disease germs will die in time with all their food gone. The gas and water can then safely be carried off underground by a second pipe.

In our houses we prevent unpleasant sewage smells from coming into our rooms by water traps in the waste pipes. These traps are little siphons such as you made in your experiments. These traps can be opened, in case they should become stopped up through carelessness. To keep a trap working, remember:

1. Never to throw rags or strings into basin, tub or toilet.
2. Never to throw grease into a basin—it is wasteful as well as careless.
3. Run washing soda and hot water through the trap once in a while to cleanse it.
4. Always run clean water through the pipes after using a basin, etc.

TO THINK ABOUT

How is the waste from your house removed? What does your city do with its sewage?

What happens to sewage in a cesspool? Why must people be very careful to have cesspools and drains very carefully and tightly built to prevent leaking?

Find the "traps" in your plumbing at home. How do they work? Did the experiment made explain this to you?

Why do houses that haven't been occupied a long time sometimes have a smell of "'sewer gas" in them. What happened to the traps?

What can you do to keep your traps at home working?

CHAPTER VII

How the House Was Lighted

"What did people do before electric lights were invented?" asked Paul. Having spent the afternoon helping Uncle George to put in the wires for the electric lights in the play-house, he felt that he had earned an extra slice of cake for supper.

Mother passed him the cake-plate as she answered, "I suppose the very earliest men of all, who lived in caves and tree-tops, just picked a piece of burning wood out of their fire and carried it for a torch."

"But that wouldn't be much good if you wanted to read or sew," said Ruth.

"No, but cave and tree-top people have no books and very little clothing, and go to bed with the birds, so they have hardly any need of light in their houses," replied Father.

"Why did you put electric lights into the play-house, when we have to have gas anyhow to cook with in the kitchen?" asked Ruth.

"Because," said Father, "gas uses up the air—a gas jet may use up as much air as two people. Then, too, it makes the room hot, and besides the gas jet may possibly leak and gas is very poisonous. We have to use it in the kitchen to cook with, but you children will have to be very careful."

"I read about a man who had never seen gas,"

said Paul, "and when he went to bed he blew it out and it killed him."

"There are not many people nowadays who would do that," remarked Mother, "but many people are very careless about turning the gas entirely off. Always turn the gas-key just as far as it will go and when you light the gas, strike your match first. Don't turn the gas on and then go hunting for a match, as I've seen some people do."

"But, Mother, what *did* they do before someone invented gas?" persisted Ruth.

"The first lights were lamps," said Mother. "Don't you remember that lovely old Roman lamp that Professor Fielding showed us? Almost as soon as people began to build real houses they needed lights, for the early houses had very few windows and very tiny ones. The first lamps were made of pottery or bronze and filled with olive oil or some sort of vegetable oil or animal fat, for kerosene was unknown in those days. The wick floated in the oil and made a feeble light."

"Oh, yes," cried Paul. "Our teacher told us a

story about Cupid and Psyche. She bent over him with a lamp and the oil dropped on him and woke him up and he was angry and went away and left her. She had a lamp just like Professor Fielding's."

"And what did they invent next after lamps?" asked Ruth.

"Well, you see," said Father, "lamps are rather a nuisance, because you have to keep filling them with oil, and, as Paul says, sometimes the oil spills and makes trouble. So someone thought that wax or tallow would be more solid and handy than oil. They melted the wax or tallow and dipped the wick into it, let it cool and harden, then dipped it again and kept on in this way until the candle was as thick as they wanted. That is the reason that we read in old books about 'tallow-dips'—it means candles that were made by *dipping* the wick into tallow. Nowadays, candles are more often made by laying the wick in molds and pouring the wax or tallow onto it."

"They must have invented candles a long time ago," said Ruth, "for we learned something in Sunday-school about not hiding a light, but putting it in a candlestick, so people could see it."

"Yes," said Uncle George, "candles are so old that nobody knows who made the first one. There is

no prettier, softer light than candle-light, but they flicker and aren't bright enough to work by."

"I like to see them in church," said Ruth.

"All the churches since churches were first built," said Mother, "have used candles. Long before Christ was born candles were burnt in the Jewish temples. You will still see great candle-sticks with seven branches in many Jewish homes."

"Oh, yes, I saw a beautiful one at Sadie Schwartz's," said Ruth. "Can we have candles in the play-house, Mother?"

"No," said Mother. "I don't like to have you children carry lights about, for fear of accidents."

"Are we going to have a lamp?" asked Paul.

"I'd rather not," said Mother, doubtfully; "you see, lamps have to be cleaned and filled every day, so that they will burn well, and then, too, lamps are rather dangerous."

"How are they?" queried Paul.

"In the first place, they tip over easily and the oil blazes up and may set the house on fire. Then, if they are not handled carefully, they sometimes explode."

"How can that happen?" asked Ruth.

"By not blowing them out properly. Do you know how to blow out a lamp?"

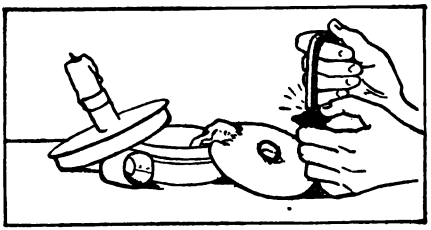
"Why, I thought you just blew," said Paul.

"'Just blowing' is likely to blow the flame down into the oil and cause an explosion," replied Mother. "The right way is to turn the flame low and then blow *across* the top of the chimney, never straight down into it."

"Do lamps eat up air?" asked Ruth.

"Yes, and they make the room hot, and often smell unpleasant. So now you see why Father and I decided that you had better have electric lights in the play-house. The electric wire glows in its little glass house and does not burn up any air or cause any danger, if the wires are fixed properly."

"Another thing that makes electric lights safer," said Uncle George, "is that they do not need any matches. It's a wonder to me that in the olden days they managed at all, with nothing but candles and lamps to burn and no matches to light anything."



"No matches!" exclaimed Ruth. "How in the world did they manage?"

"Next time you come over to our house," replied Uncle George, "I'll show you an old tinder-box that belonged to my great-grandfather. They used to strike a flint on a piece of steel, and when it made a spark they would catch the spark on a piece of tow."

"My, what a nuisance!" exclaimed Ruth. "And

now we still have the candles and lamps, and gas and electricity besides."

"I wonder, Ruth," said Uncle George, "what sort of new, unknown light your great-great-grandchildren will be using."

THINGS TO DO

Let us see how a flame "uses up" air. Find a flat thin cork, about an inch across, get a small birthday-cake candle and fix it in the middle of the cork. Float cork in a pan of water. Now get a tumbler and after lighting the candle, slowly invert the glass over the floating candle. Press down into the water. Notice how the candle behaves. Notice how the *cork* behaves after the candle stops burning. Can you tell *why* more water could come into the glass? Does this help us to understand why a flame "uses up" air? Try to find out what part of air the flame used up. Is this an important part of air?

Get some modeling clay. Find pictures of early lamps, such as those used by the Romans, and model an open lamp. Perhaps you can have it baked in an oven. Try putting some oil and a wick in it, as the ancient people did. Is it a good lamp? What does it need, do you think?

Try to make a dipped candle.* It can be done with tallow or parafine, and some very coarse, soft cotton cord for a wick. Try to scheme out a way to melt the wax without burning it, and a way to dip the wicks so that they will hang straight and harden into good candles. You will have to look at pictures and read in books on Colonial life to get ideas before you make your own plans.

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* Examine a good modern lamp and pick out the parts of it that are not found in the ancient lamp. How does each new part add to the usefulness of the lamp.

Examine an electric bulb. Where does the light seem to come from? Is there any flame? Do you know if there is any air inside the little bulb? Does it need air to give us light?

THINGS TO REMEMBER

As soon as houses were built people had to have artificial light. The first artificial light was probably a torch, and very soon a poor kind of lamp. Later chimneys and burners were invented for these lamps. They permitted the flame to burn brighter and gave better light. Candles, first dipped, then molded, have been used since very early times. These forms of light burned vegetable oils or animal fats, which our ancestors early learned to use. Much later men discovered that they could get oil and gas from the earth. Then they learned to get gas from coal. People began to use kerosene lamps and gas for lighting and cooking.

All of these things, gas, oil, candles, give light from flames. Flames give heat. Flames use up oxygen from the air and put a gas called carbon dioxide back into it just as people do when they breathe. Matches are needed to light these kinds of lights, and matches are dangerous if we are careless. Electricity gives light by making the little wires in the bulb so hot that they glow when we turn on the current. For these reasons electric lights are better than gas, oil or candles. If you do not use electricity some good rules to remember about lights are:

The wick of a lamp must always be clean and well trimmed.

A lamp must be *well filled before* lighting.

Turn up the wick before lighting. Then put on the chimney and turn wick down till it gives the best light.

When you want to put *out* the light turn down the wick till the flame is low. Then blow *across* the chimney.

Never put a lamp where it could be tipped over by people or by curtains blowing against it.

Never take candles or lamps into closets to look for things.

When you light the gas always strike your match and hold it near the gas jet *before* you turn on the gas.

Never go to sleep leaving the gas or a lamp burning unless there is some responsible person to look after the light.

Can you think of *other* safety rules about lights?

TO THINK ABOUT

How did people in the old Roman and Bible times light their homes?

Do you think the people in Colonial times used any lights in their homes that we have? What have we that is better than their light? Did they light their churches? Their streets? How? Can you compare the amount of artificial light they used with what we use? What are some reasons for the differences?

What three kinds of lights are flames? Why are such lights not as good as electric lights?

How can we avoid dangerous accidents when using gas or oil, either in lights or stoves?

CHAPTER VIII

Kitchen Comfort

"I do think the kitchen is the very nicest, most interesting room in the whole house," said Ruth.

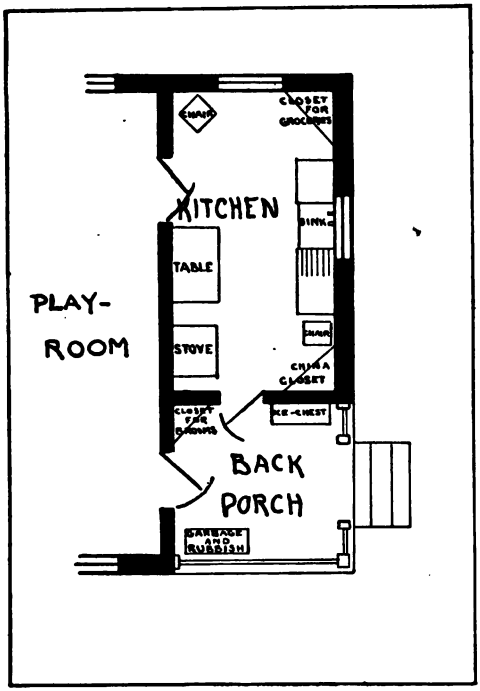
She was standing in the center of the "cunning little kitchen" for which she had begged and which Mother had agreed it would be well to have. Father had hesitated on account of the cost, but Mother had said, "I've always wanted Ruth to have cooking lessons at school, but Miss Scott tells me they have no place to do it. Now my plan is to offer to let Miss Scott bring over the class once a week. It will be good for Ruth—I simply have not time to teach her myself—and it will be nice to feel that we are not being selfish with the house, but are making it useful to the children's friends."

"Oh, goody!" exclaimed Ruth. "I'm going to invite all the girls and we'll form a Junior Housekeepers' Club and——"

"Where do I come in?" protested Paul.

"You shall *be* in all the time, Paul," said Mother, patting his shoulder. "I don't intend that my son shall be perfectly helpless when there is no woman around to cook for him. Some of the most famous cooks in the world have been men—so you and the other boys shall have a cooking club, and we'll see whether the boys or the girls will win first prize for their cookery."

Mother and the children had spent a busy morning putting the kitchen to rights, washing out the new sink, brushing off the stove, putting away the dishes and pans and deciding where the table should stand.



"I really think," said Ruth, with a satisfied nod of her head, "that we planned it all *very* sensibly The china closet is right near the sink, so that I can put the clean dishes away as I wipe them. The closet for the flour and sugar and things, with this nice space down below for the pots and pans is handy to the stove, and——"

"I think," interrupted Paul, "that the table had better stand right here by the stove. Then, when we want to lift anything hot and heavy off the fire we can set it right on the table."

"Good work, son," said Mother. "I'm glad to see that there is a brain under those curls of yours. We'll put the table by the stove, as you suggest. Now where shall we place the refrigerator?"

The refrigerator was Ruth's especial pride and joy—it seemed so like real housekeeping to have a genuine, grown-folks' refrigerator. To be sure, it was only lent by Aunt Louise for the summer, but Ruth rejoiced in it just the same and secretly hoped that when Aunt Louise came back from the mountains in the fall she would forget to ask for the refrigerator. The only trouble was that it was so big. Ruth's brow puckered. "If only the kitchen were a little bigger," she sighed.

"I have it!" cried Mother. "We'll set it right out here on the back porch. The ice won't melt so fast as it would indoors and it will be very convenient. One great thing in planning a kitchen is to arrange all the furniture so as to save steps. I'll never forget my grandmother's kitchen. It was huge and she must have walked *miles* back and forth from stove to table and table to closet every day."

"I'm going to wash the refrigerator out right now," declared Ruth.

"Are you sure you know just how?" asked Mother.

"Yes, indeed; I've helped Aunt Louise do it."

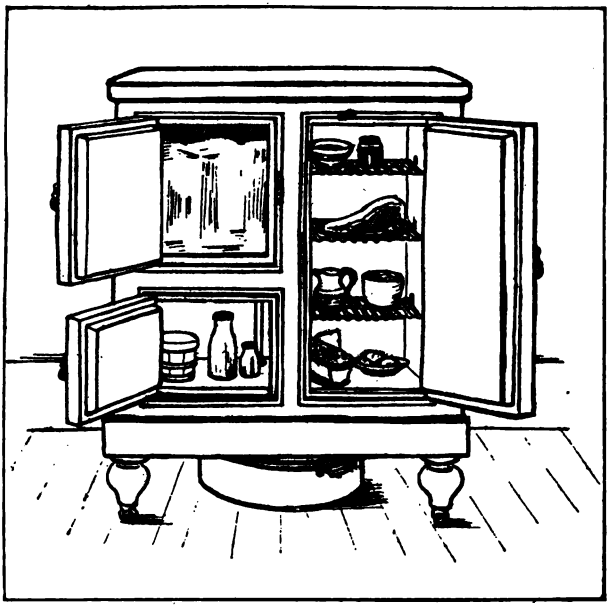
So Ruth filled the new pail with hot water into which she carefully poured a little ammonia. She took the wire racks out of the refrigerator and scrubbed each one. Then she scrubbed out the whole inside of the refrigerator, letting the hot ammonia-water run off down the pipe into the drip-pan. "Now I'm going to get some ice from the other house," she said, triumphantly.

"Not yet, dear," said Mother. "When you have just scrubbed it with hot water, you must let it cool, or your ice will all melt. But I'm glad to see that you know how to keep a refrigerator sweet and clean. It ought to be cleaned this way every week, and if anything is spilled in the refrigerator, it ought to be washed up at once—not left to get sour and smelly. Besides, the pipe is likely to get clogged if you don't."

"Mrs. Frost had an awful time with her refrigerator last week," said Paul. "Robert went to it to get some grape-juice for himself and me, and we forgot and left the door open. And what do you think that sly old Billiken did? He got in and ate up a whole platter of cold chicken and then he heard Mrs. Frost coming and jumped and upset the mayonnaise and a bottle of cream. Mrs. Frost never found out about it until next day when she went to get breakfast. She was awfully cross at Billiken and at Robert, too—she said it took her an hour to get it cleaned up, because the mayonnaise all got down the pipe. She had to pour down boiling water and ammonia to dissolve the grease."

While Paul had been talking, Mother had been

putting the broom and whisk-broom and dustpan, with the pail and cleaning cloth, into the corner closet



on the porch. "There," said she; "now you will always know just where to find your cleaning things and they won't be in the kitchen with your food and dishes. I think Uncle George had a bright thought when he planned this porch closet and this box for the garbage pail and rubbish tin." As she spoke, Mother threw a handful of paper into the rubbish tin. It stood, with the garbage pail, in a long box with a hinged cover, on the porch. Uncle George had made this box so that all dirt might be kept out of the kitchen and so that there should be no need of having the garbage and rubbish in sight.

As she closed the box-lid, Mother added, "It will be part of your work every day, Paul, to empty your garbage into the big pail at the other house, and to wash out this pail well with hot, soapy water and washing soda. And Ruth is to keep the rubbish in the other tin emptied into the barrel at the big house, or, in winter time, the rubbish can be burned in the furnace."

While she was talking, Paul had been unwrapping a parcel that lay on the table. "What a jolly, big dishpan!" he exclaimed. "Just the thing to give my turtle a swim in!"

"No you don't!" cried Ruth. "The idea of putting your dirty old turtle into our lovely clean dishpan!"

"But Lightning *isn't* dirty," protested Paul. He had named his pet "Lightning" because he had raced him with every other pet turtle in Pleasantville and he had beaten them all.

"Well, I don't think we exactly care to have him mixed up with the dishes we eat from, dear," put in Mother. "And speaking of dishes, let's get them all washed and put into the china closet." As she spoke, Mother tied a big apron on Ruth and two others on Paul and herself. Next she put two dishpans into the sink, one full of hot, soapy water and the other with clear, hot water.

"Oh, do let me wash," begged Ruth. She seized the new soap-shaker and stirred the water into a foamy flood. Each dish was carefully rubbed with a

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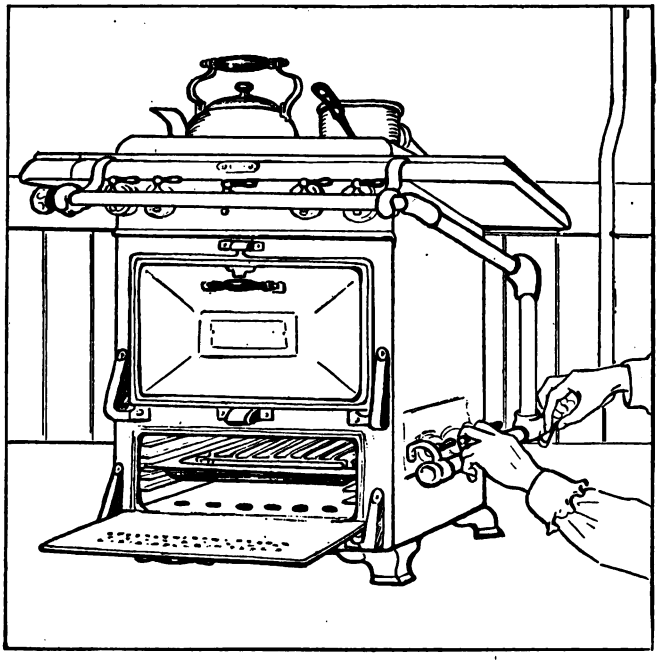
clean dish-cloth, rinsed in the hot water and set to drain on the drain-board. Mother wiped them with a soft dish-towel and Paul set them in shining rows on the newly-scrubbed shelves of the china closet. Then the dish-cloth and towel were washed and hung out on the lilac bush by the back porch to dry and the dish-pans were washed out with fresh, soapy water and hung under the sink. As she untied her apron, Ruth picked up another parcel. "What is this?" she asked. "That is a chain pot-cleaner, for scouring sticky pots and pans," replied Mother. "I hope you will be careful cooks and not let your things burn, but if you do, this, with some sort of scouring powder, will help to clean them. And this odd, long brush is to go down into milk bottles and

pitchers, where your fingers and dish-cloths can't reach. You know, there is nothing more disagreeable than a bottle or pitcher with bits of sour milk or decaying food in it."



"What on earth did people do before soap was invented?" said Ruth.

"When we were out camping," said Paul, "if we forgot and left the soap behind we used to scrub ourselves with sand."

"That is just what people used to do before they had soap," said Mother. "They scrubbed with sand

or wood-ashes. But people have used soap almost since the days of Christ."

Ruth had been investigating the gas-stove. "I wish you'd show me how to light the oven," she said. "I tried to light the oven at Aunt Louise's house one day, and it went 'pop' and scared me."

There is only one thing to remember about lighting a gas oven," said Mother. "You must always *open the door* first. Then, if the oven has what is called a 'pilot-light,' turn that on and then turn on the gas. If there is no pilot-light, be sure to light your match before you turn on the gas, so as not to let any unburned gas escape into the room. Then be sure to turn off the pilot-light when the other lights are lighted. Every year there are about one hundred thousand accidents in the United States caused by gas."

"Well," said Ruth, "I certainly should hate to have an accident to this dear, new play-house. We'll be very, very careful, won't we, Paul?"

"Sure we will," agreed Paul. "Oh, Mother, there's the man coming to fix the bathtub pipes!"

THINGS TO REMEMBER

Because our health depends so much on our food, and our food is prepared in the kitchen, the kitchen is one of the most important rooms in a house. It must be convenient and it must be clean.

A refrigerator is necessary to keep food from spoiling. It should be scrubbed once a week or oftener if food is spilled in it. Use hot water and ammonia. Wash carefully all racks, walls and every little corner. Let hot

ammonia water run down the waste pipe. Do not replace ice or food till all is dry and cool. Keep the door tightly shut. Of course ice will always be washed before it is put in the clean chest.

Have a cleaning closet in which tools and materials for cleaning are kept. Here belong broom, mops, clean dusting cloths, clean soft rags, washing soda, household ammonia, washing powders, soaps and furniture polishes. Use these things to keep floors, tables and sinks clean.

A good housekeeper has two dishpans for washing dishes. One is filled with hot soapy water, the other with hot clear water. After dishes are scraped free from grease and food they are washed in the hot soapy water, rinsed in clean, clear hot water and dried with the soft clean towel. A pot chain and a scouring powder should be used on cooking pots. A long handled brush, kept very clean, should be used for bottles and pitchers. Dishpans, cloths and brushes must be thoroughly washed when the dishes are done and put away clean and dry.

Nowadays most cities ask their citizens to keep food scraps and rubbish, as paper, boxes, bottles, separate, to help in disposing of the waste. Every kitchen therefore should have both a garbage and a rubbish can. The garbage can must be of metal, with a tight-fitting lid. It should be scrubbed out with soapy water and washing soda daily in hot weather. Then neither flies nor germs of decay causing bad smells will ever be in your garbage can.

TO THINK ABOUT

Compare the plan of your kitchen with the picture in the book. Which is more convenient and why? Ask your mother what she thinks.

How should dishes be washed to have them clean and shining?

What materials and tools would you need for keeping

a kitchen spotless? Do people always have these convenient things?

Why do we need to take so much trouble to keep a refrigerator clean? How can we do so? How do you do so at your home? Do all people have refrigerators? Are there other ways of keeping food cool? Why *must* some foods be kept cool? What foods?

How often does the city empty your garbage can? What are the city regulations about garbage cans? What becomes of the garbage? What is done at your home to keep the garbage can free from flies and smells? Is the way the book tells about a better way?

CHAPTER IX

The Bathroom

While Ruth and her mother finished putting away the dishes, Paul had a beautiful time watching the plumber connect the pipes in the bathroom. "How did you ever learn to do it so well?" he asked, as he watched the plumber's strong hands at work. The man looked up with a smile. "My father taught me," he said. "It took me several years to learn all about pipes and drains and such things; but anyone can *ruin* a pipe in about five minutes. Funny, isn't it, that it takes so long to learn to *make* anything, but *spoiling* things just seems to come natural."

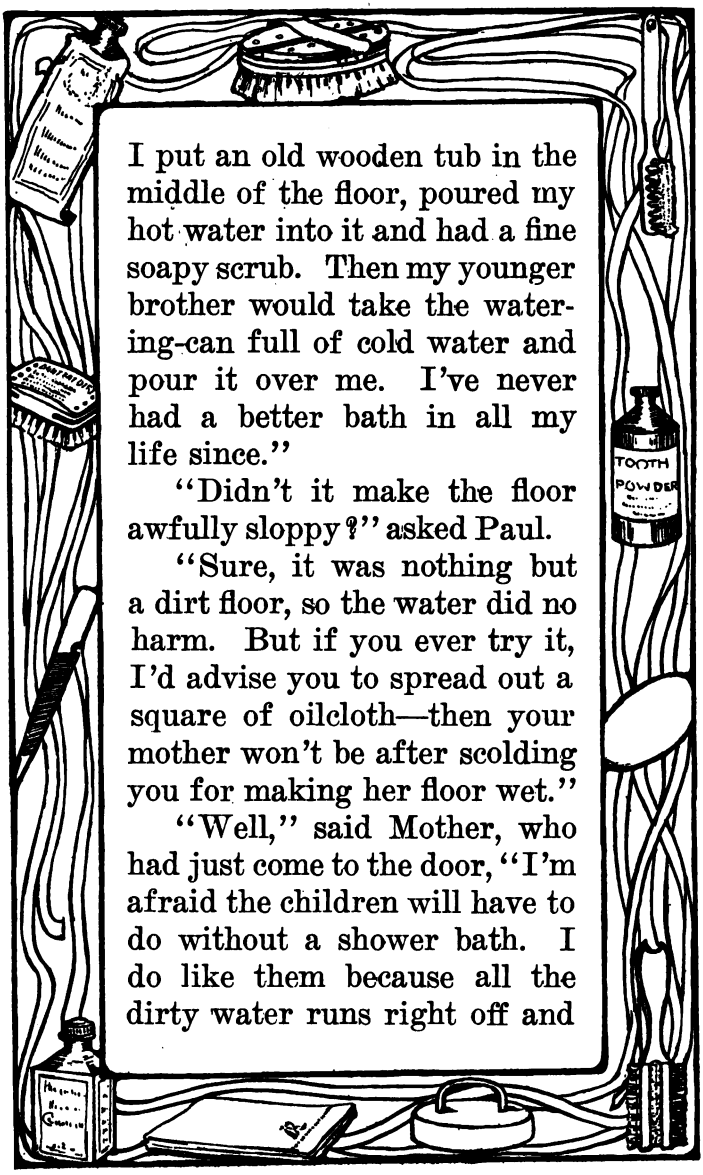
"Mother showed us why we mustn't ever throw things down the plumbing," said Paul, "so I don't think your work will be spoiled in *this* house. It's a nice bathroom, isn't it?"

"It certainly is," nodded the man. "Lots nicer than I had when I was a boy your age."

"What was your bathroom like?" inquired Paul.

The plumber's merry blue eyes twinkled. "Well, you see," he said, "I was born in the Old Country—in Ireland. There were nine of us children, and we had but four rooms in the house, so the bathroom was situated in the dining-room and the dining-room was situated in the kitchen. When I wanted to take a bath, I put a big pail of water on the stove early in the evening. Then, when the family had gone to bed,

MFB



I put an old wooden tub in the middle of the floor, poured my hot water into it and had a fine soapy scrub. Then my younger brother would take the watering-can full of cold water and pour it over me. I've never had a better bath in all my life since."

"Didn't it make the floor awfully sloppy?" asked Paul.

"Sure, it was nothing but a dirt floor, so the water did no harm. But if you ever try it, I'd advise you to spread out a square of oilcloth—then your mother won't be after scolding you for making her floor wet."

"Well," said Mother, who had just come to the door, "I'm afraid the children will have to do without a shower bath. I do like them because all the dirty water runs right off and

there is never any trouble about having to clean the tub, but this isn't a boarding house or hotel where all sorts of people are using the tub, so it will be kept clean and nice." As she spoke, Mother had been unwrapping a bundle, from which she took a large scrub-brush, a smaller one, a cake of soap, a nail-cleaner and a package of tooth powder.

"This big brush," she explained, "is to scrub out the tub with. It needs a cleaning every morning and, of course, everyone who takes a bath will always scrub out the tub with soap and hot water, so as to leave it clean and nice. This small brush, Paul, is especially for you, so that you can scrub away all the dirt from under your nails—and if there is any left, you can get it out with this nail-cleaner."

Paul was looking at the smooth back of the nail-scrub. "What's this that you've printed on the back of the nailbrush, Mother?" he asked.

Mother laughed. "I thought," she said, "that it might help you to remember about having clean nails."

This was what Mother had printed on the brush:

DONT EAT GERMS!

To keep your health you must be neat.
Your fate lies in your hands, they say;
So scrub them well before you eat,
To wash the dirt and germs away!

As Paul finished reading the verse aloud, Ruth came in with her school books on her arm. "Oh, Mother," she exclaimed, "we had such an interesting

time at school! I told Miss Baker about the bathroom we are having made and she told us a lot about bathrooms."

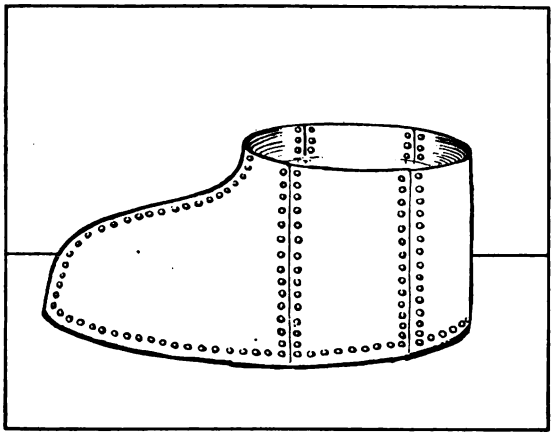
"What did she say?" asked Paul.

"Why first she showed us the sort of things that they used in the baths in Rome; she had borrowed them from Professor Fielding. There was a funny sort of scraper called a 'strigil' that they used to scrape off the dead skin. I suppose it worked something like our brush. Then there was a little metal bottle that held oil. The Romans used to oil themselves, because Miss Baker says soap takes some of the oil out of your skin and leaves it dry. And there was a sort of shallow cup that they drank out of—because the hot bath made them thirsty."

"Yes," said Mother, "the inside of you needs a bath just as much as the outside, or more so. Always drink plenty of water."

"And then," continued Ruth, "of course she told us, just as you have, that we ought to have a warm, soapy bath several times a week and a cool splash every morning. And then she showed us a picture of such a funny bathtub. Benjamin Franklin made it just for himself. It was shaped like a shoe. Franklin used to fill it with warm water, so when he got in, the water came way up to his neck. He had a book propped up on the instep of the shoe and he used to sit there and read. Mustn't he have looked funny?"

Mother laughed. "Indeed, he must! But you children had better not follow his example and sit in the tub for hours together. When people are ill, or very tired, sometimes it is good for them to take a



long soak in warm water. It seems to make them sleepy and comfortable, but for healthy youngsters like you, a brisk scrub and a good cold splash are far better."

"Where are we going to hang our towels?" asked Paul, who had been watching the plumber pack up his tools.

"You can hang your towel and wash-cloth here over the tub—yours at one end and Ruth's at the other, so that if one of you has any skin trouble or any sort of illness, the other will not run any risk of getting the germs. And you can hang your tooth-brushes on these two hooks under the medicine closet. If you are out here, you won't have me close by to

remind you, so you will have to try extra hard to remember to brush your teeth the first thing in the morning and last thing at night."

"But you'll usually be with us at meals, so you can remind us about brushing them after meals," said Ruth.

"But I shan't be with you at meals all your lives, Ruth," said Mother, "so you had better form the habit right now of remembering for yourselves. I'll lay the package of tooth powder here and when I go over to the big house I think I can find two bottles. We'll divide the powder and you can each have a bottle."

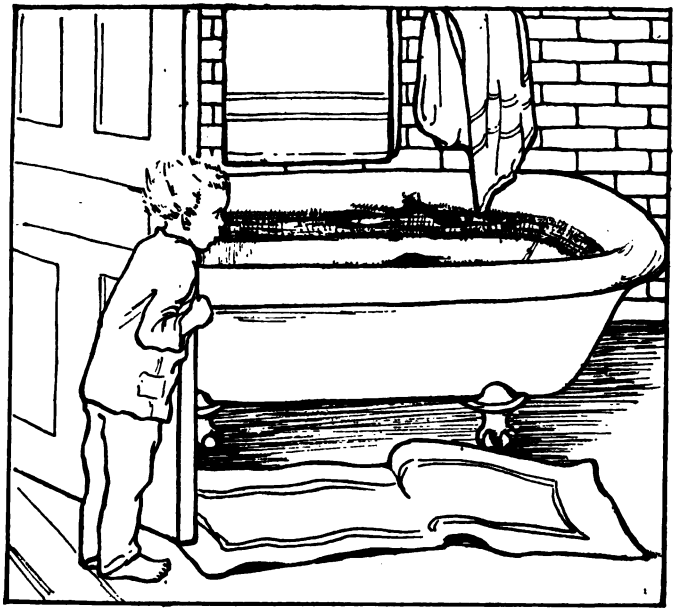
"What's the powder made of?" asked Paul.

"I had the druggist make it for me," replied Mother. "I asked him to mix two ounces of precipitated chalk with one-half ounce of powdered castile soap and one dram of powdered orris root, so I got all this powder for only fifteen cents, and it is just as good for your teeth as the most expensive tooth paste in a fancy tube."

As the plumber went out the door, in walked Father. "My, what a clean, white tub!" he exclaimed. "I hope you'll play fair with that tub."

"What do you mean?" asked Paul.

"Well," said Father, "I have known boys—of course, I never lived with one, but I have *known* them —who left the tub for someone else to clean. I used to forget and do it myself when I was a boy. And one night I had such a queer dream. I made up a verse about it."



"Say the verse to us," begged Ruth.
So Father, with a twinkle in his eye, recited:

" After my bath, I dreamed last night
Something that gave me such a fright.
I thought that through the bathroom door
I heard the unwashed bathtub *roar*,
' Hi you! Come here! What do you mean?
I helped you wash all nice and clean,
And now you coolly turn your back
And leave me here all streaked and black.
Whoever wants to use me next
Will, I am sure, be sorely vexed
At seeing this dark, dirty rim
That you have left behind for him.
Fair play, my son! Come, give a rub
To your old friend, the faithful Tub!' "

THINGS TO REMEMBER

The bathroom is another one of the most important rooms in the house. To use it well is one great step in health-getting. We can begin by taking proper care of the bathtub. After every bath we scrub the tub with a large brush which we keep for this purpose. This leaves the tub clean for the next bath. We also scrub the wash basin after every using.

Each person in the house has his own wash cloth and towels and keeps them on his own hook. Of course each person has a separate hook for his own toothbrush, which he uses night and morning and hangs up, well rinsed, after each using.

In the bathroom there will be plenty of good soap and tooth paste. Salt is a very good substitute for tooth paste. There will be a nailbrush and a nailfile, so that dirt which gets ground in under the finger-nails can be removed. People can do the dirtiest work and still have clean hands afterwards if they use both of these bathroom tools properly.

We will use the bathtub for warm, soapy all-over baths at least twice a week to get our bodies clean and to remove all odors. Besides the scrub-bath for cleanliness, a cold splash every morning is a good habit. It makes blood circulate through the body and helps train the skin to get used to cold. Never forget that clean bodies deserve clean underclothes. Civilized persons use bathrooms and laundries freely. Savage people do not. Which will you be?

TO THINK ABOUT

What is everyone's duty to the bathtub and wash-basin?

How can we get our nails clean after working in garden or helping clean the automobile?

What care should one take of toothbrush, towel and wash cloth?

Where do you suppose the bad odors in some schoolrooms or crowded cars come from? How could they be avoided?

For what different reasons do we take hot and cold baths? Do you remember how to avoid "taking cold" after a hot bath?

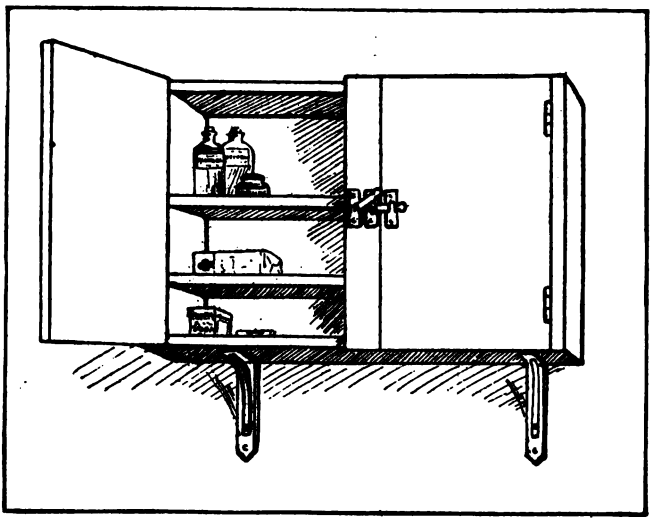
How can people who do not have bathrooms keep themselves and their clothes clean?

CHAPTER X

The Medicine Closet

"Well," said Ruth, as they gathered around the supper table that evening, "the bathroom is all finished. Even the towels and soap are there. I can scarcely wait to take a bath in the new tub."

"It isn't *quite* finished, Ruth," replied her Mother. "To-morrow I want to go down to Bradley's to get several things, and while I am there I am going to buy some supplies for your medicine closet."



"But we are scarcely ever sick," objected Paul, "and when we are, you hardly ever give us any medicine."

"I don't mean, dear, that I am going to buy a lot of medicine to dose you with. But sometimes accidents happen, and I want you the have a few simple remedies in the bathroom cabinet which you will know how to use in case of an accident."

"What sort of accidents are we likely to have, do you think?" asked Ruth.

"Well," said Father, "I think you will be a good deal luckier than most young cooks if you don't sooner or later burn your hands."

"And what ought we to get to put on a burn?" inquired Paul.

"If it is just a little burn that makes a red mark," said Mother, "a spoonful of baking soda with a few drops of water will make a paste that will take the pain away very soon. Such a soda paste is very good for mosquito bites, too, and any sort of sting."

"Last summer," put in Paul, "Jim Nixon and Kid Frost found an empty hornets' nest and they started to poke it down, but it wasn't empty at all and the hornets came out as mad as anything and stung Jim and Kid awfully. They came running down the road screaming 'bloody murder,' and old Mr. McGinnis met them and he took a big lump of mud and plastered it on their faces. Jim said it helped a lot."

"Yes," said Father, "mud or any sort of paste that keeps the air out will help a burn or sting. But for a really bad burn, or one where the skin is off, I think you had better have some sweet oil. Such burns need something oily or greasy to soothe them.

And over the oil you will need a bandage of sterilized gauze."

"What's that?" asked Paul.

"It is fine cheese-cloth that has been treated so that all germs on it have been killed. You know that if germs get into a wound it is likely to fester and be very sore or even make a wounded person dangerously ill. During the war, you know that Mother and you children, too, helped to make a great many bandages. These bandages were afterward sterilized—dipped in a sort of liquid that killed all the germs. Then when a bandage was put on some poor, wounded soldier, there was no danger of his wound getting any germs from the bandage. We'll buy some bandage-gauze like this for your medicine closet and then, if you cut your finger, it will be useful."

"But," said Mother, "before putting on the bandage, you must be sure that there is no dirt in the cut. That is why, if it is at all dirty, I want you to hold a cut under the faucet and then put on some listerine or alcohol and water, before putting on the bandage."

"I'm going to get a pencil," declared Ruth, "and make a list of what we must put into the medicine closet. Let's see, for slight burns and stings, we want some baking soda. For burns where the skin is off we want some sweet oil. For cuts, we need some listerine, or alcohol to clean them and some sterile bandaging to tie them up."

"I didn't know that alcohol was any good," said Paul. "I thought it was just used to make wine and whiskey."

"Alcohol is like most things in the world, Paul," said his Father. "It is useful or harmful, according to how it is used. It is very harmful to drink it, for it weakens the heart, makes your eyes and ears less keen, overworks your liver and kidneys, makes your nerves 'shaky' and if you get into the habit of taking it, makes you such a slave that you feel you can't get on without it. It isn't a food, at all, but a dangerous drug, as people are beginning to realize, and never ought to go into anyone's stomach unless the doctor orders it as a medicine, like any other drug. But for use on the *outside* of your body, it is very good. As Mother has said, it kills germs. I wonder whether you children know the right and wrong way to take out splinters."

"I always just take a pin and dig," said Paul. "Of course, it hurts, but I don't care."

"I'm glad you are brave, son," replied Mother, "but I want you also to be sensible. There is an old proverb, 'Discretion is the better part of valor,' which means that bravery isn't of much use without good sense. Now it isn't sensible to 'just dig' into your finger with a dirty pin or needle. Pins and needles are apt to have germs on them. Then, too, your finger itself is *sometimes* dirty. Can't you see that if you dig into a dirty finger with a dirty pin, you are just planting germs in your wound?"

"Never thought of it before," admitted Paul. "Well, what is the right way?"

"The right way is to wash the finger thoroughly in a little alcohol, so there are no germs on it. Then

dip a needle into the alcohol. Then 'dig' for the splinter. Alcohol is good, too, for rubbing on bruises and sprains. Almost all the liniments for rheumatism and lameness are mostly alcohol. If you get a bad bruise, put as hot water on it as you can stand, and then put on some cold water with alcohol in it. Yes, indeed, we must have some alcohol in our closet, but to use *outside,* not inside."

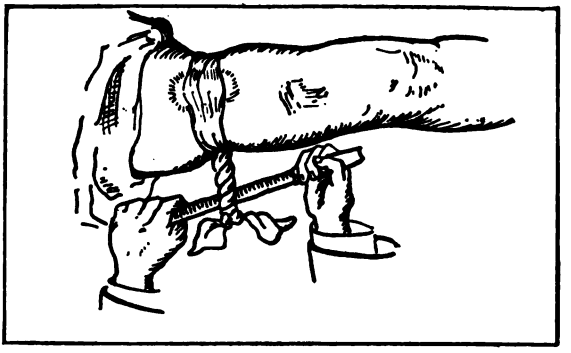
"Suppose," said Paul, "I got a really bad cut, like Luke Evans last summer. He was playing in the barn and he fell right on a scythe and cut his leg dreadfully. It bled lots, kept coming in sort of spurts."

"He must have cut an artery," said Father. "You know, the arteries are the pipes that carry the blood *from* the heart to all parts of the body and the veins carry the blood *to* the heart. When a vein is cut, it does not bleed so fast, isn't quite such a bright red and doesn't come in 'spurts,' as Paul says. If anyone is badly cut, you should call help and get a doctor at once, for if a person loses too much blood, he will be very ill or may even die."

"But suppose you can't find a doctor right away," said Ruth.

"In that case," said Father, "you must stop the bleeding until the doctor comes. If the blood is coming in spurts, you may know that the blood is coming *from* the heart, so you must press on the artery *between* the cut and the heart, so as to stop the blood. The easiest way to do this is to tie a handkerchief tightly around the arm or leg *above* the cut. Then

slip a stick under the handkerchief and twist it round so as to draw the handkerchief as tight as possible This will prevent the bleeding, but you should get some grown person to come as quickly as you possibly can."



"What do you do for a bad burn?" asked Ruth.

"There isn't much that I could tell you to do, except to put on some sweet oil, or even lard, and run for a doctor," replied Mother. "The most important thing for children to know is how to avoid danger from fire by being careful with matches, stoves and lamps, and what to do if they or anyone else catch fire."

"What ought you to do?" queried Paul.

"The quickest way to put out a fire is to *smother* it. Don't start to run. Don't rush to a window, or outdoors. The air simply fans the flame, just as we kindle the fire in the fireplace by blowing on it with the bellows. Throw yourself flat on the floor. Flames, you know, always go upward, so if

you lie down they will not go toward your face. Then roll yourself in a rug, table cover, or any woolen thing that you can catch up most quickly. Don't use cot-

ton—it burns too easily. I shall never forget one time when I was about Ruth's age; I went to visit a friend. Her baby brother was playing about the floor. My friend Elsie and I had been playing menagerie and had taken the fire screen to make believe it was a cage. We forgot to put it back and suddenly we were horrified to see the baby lurch toward the open fire and fall. His thin muslin dress was in flames in a moment. I just stood and screamed with fright. Luckily, Elsie was wiser and braver than I. She seized the woolen rug, threw it around the baby on the floor and rolled it so tightly about him that the flames were smothered."

"Was the baby much burned?" asked Ruth, with anxious eyes.

"Not very badly. His legs were a little hurt, and

so were Elsie's hands, but the doctor said that, by acting as quickly as she did, she had saved the dear baby's life. Just think how terrible she and I would both have felt if our carelessness about the fire-screen had killed him."

Ruth looked very serious for a moment, then she picked up her pencil. "Well," she said, "I've put down baking soda, sweet oil, bandages, alcohol."

"Suppose one of us got poisoned," suggested Paul, who was fond of thinking up horrors.

"I'm not going to suppose anything so dreadful," laughed Mother. "You know, I never keep any sort of poison around. I always tie a red ribbon on the neck of every poison bottle, and I keep such bottles way off on a top shelf by themselves. Anyone who is silly enough to keep bottles of poison in with other medicine almost deserves to be poisoned for his foolishness."

"Well, but Mother," insisted Ruth, "suppose we were visiting somewhere, just as you visited Elsie, and the people were careless with their poison and I swallowed some—what ought I to do?"

"Different poisons need different treatment, Ruth," said her mother, "but there is one thing that is always safe to do, and that is to swallow all the warm water you can. The water weakens the poison. After you have drunk about a cupful, into the second cup put a tablespoonful of dry mustard or two tablespoonsful of salt—that will make you throw the poison up. But, of course, you should get a doctor

at once and only give the mustard-water so as to help the sick person until the doctor arrives."

"I think something more important for most children," said Father, "is to know what to do for poison ivy. I suffered agonies with ivy poisoning when I was a boy until someone told me, whenever I had been near the ivy, to scrub my face and hands well with hot water and soap, as soon as possible. It seems to prevent the poison from working into the skin and system. After you are actually poisoned, nothing seems to help much; but washing in hot water, then putting on carbolized vaseline is about as good as anything."

"I was always running into poison ivy," said Mother, "until an old Quaker lady said to me,

"'Green leaves three
Say to thee
'Don't touch me!'"

and since then I've always remembered to avoid the three leaves. Ruth, if your list is finished, I'll take it down to the druggist to-morrow and our medicine chest will be complete."

As Father kissed the children good-night, he said, "There is just one thing that I want you youngsters to remember about accidents. That is, that an accident is the surest test of courage and sense. When

an accident happens, the silly people scream and run about and don't know what to do. They simply make things worse. The brave and wise people think what to do and do it quietly and quickly. They are the heroes by whom the weak and foolish people are saved. You know how to use all the things that Mother is getting for the medicine closet. I hope we shan't have many accidents, but if we do, I trust you to remember and to use what you know."

THINGS TO REMEMBER

The medicine chest should be kept in the bathroom within easy reach. No old bottles with scraps of medicines should be allowed in it. No unlabeled bottles or boxes should be there. Like everything else in the bathroom, it must be very clean. It should contain simple things to use for every-day accidents and simple remedies for slight illness. Let us not consider illness here, but only a few things to use for accidents that might happen in any home. We want in the medicine chest:

1. Some *grain* alcohol. Wood alcohol is *poison.* Alcohol is for outside use only. Use it to pour over a cut to disinfect it. Pour it over a splinter before removing it. Put the needle you use into the alcohol for a minute before you use it, also for disinfection.

2. Some aseptic absorbent cotton. The cotton is used in applying any liquid to the skin. It must be kept in its box and only as much removed at a time as will be used.

3. Some sterile gauze bandages. Gauze is cheesecloth, and it is sterile because all the germs on it have been killed. Therefore when you handle it be careful to keep it as clean as it already is. Never take off more than you need. Keep it in a closed, clean box. Never put *cotton* on an open wound—always use gauze for cuts

or burns. Learn to recognize a cut artery by the spurting of the blood. A cut vein bleeds slowly, and is not so dangerous. When the blood comes in spurts press on the artery between cut and heart. Tie a handkerchief or bandage above the cut. Slip a pencil or stick under the bandage and twist till bandage is pressing hard enough to stop blood. But send for the doctor at once.

4. We need some *sweet oil* for burns. Any good clean oil that will keep air away is used to put on burns where the skin is off. The oil is covered with sterile gauze and the wound kept clean. If it does not heal nicely at once a doctor should look at it to be sure it is free from germs.

5. *Baking soda.* Use this made into a paste with water on little burns that redden skin but do not break it. Use the same treatment for insect bites or stings. Any paste, like clean mud, which keeps air out, will lessen the pain.

6. Have a small pair of scissors and safety pins to help in putting on bandages.

7. Carbolized vaseline. Poison ivy often causes trouble in the spring and summer. As soon as you come in if you have been exposed to ivy wash in hot water and strong kitchen soap. Then put carbolized vaseline on the places that are red and irritated. It is much better to learn to recognize poison ivy and *avoid* it. Carbolized vaseline may also be used for burns.

8. Some salt and some mustard in tight, labeled bottles.

9. Some people like to keep a Red Cross book of *First Aid* in the medicine chest.

10. A teaspoon and a clean glass.

TO THINK ABOUT

For what uses will you need alcohol in your medicine cabinet? What kind of alcohol? What is the best substitute for alcohol? For these uses?

What kinds of bandages must be used on cuts or

burns? What is the first rule in fixing up a cut or burn? How must we care for the bandages and cotton in the medicine cabinet and why?

How would you stop bleeding from an artery till the doctor came?

What must you have in the medicine cabinet for slight burns?

What must you have in the medicine cabinet for burns that take the skin off?

What should you do to put out a fire on someone's clothing?

What would you do if someone accidentally swallowed something you knew was poisonous? How can we prevent such accidents?

How are you going to avoid ivy poisoning on your trips to the woods? If you are unlucky enough to get it, what should you do?

If someone came to you to have a splinter removed, how would you do it?

If someone came to you with a cut finger, how would you treat it?

Can children take care of larger accidents than this? What do we do for serious accidents at once?

Why is our conduct of the very greatest importance in an accident?

CHAPTER XI

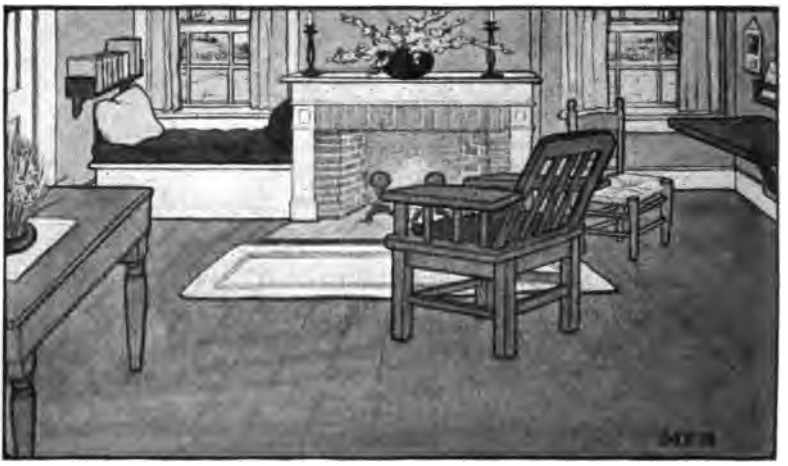
The Bedroom

"There," exclaimed Ruth, as she laid down her needle and thimble, "my sash-curtains are all ready to put up. Do come show me how to fix them, Mother."

Mother rose willingly and the two ran a race to the play-house door, for Mrs. Weston was as quick as any girl, and her children thought her much more fun than most of their playmates. Laughing and breathless, they reached the room that had been set aside for Ruth's bedroom. "Isn't it the dearest bedroom in Pleasantville!" exclaimed Ruth. And indeed, it was a pretty nest for any little girl to sleep in.

It was not a fussy, fancy room. Dorothy Frost, who had come in that morning to see the play-house, told her mother that it was not "stylish," at all. But it was as bright and airy and sweet-smelling as white paint, sunshine and air laden with the odor of cherries could make it.

Perhaps Ruth was so proud of it because she had worked so hard over it. All of three long afternoons she had spent in painting her old bedroom furniture a smooth, creamy white. The iron bed, the chest of drawers, the table, the rocker and the low, straight chair had each had two good coats of enamel paint. Now they stood in speckless beauty adorning her room. Their whiteness and the deeper cream paint on the walls made a pleasant contrast with the



strips of blue carpet that formed rugs beside the bed and before the chest of drawers.

The sun poured through the two open windows and outside the cherry-tree shook its crimson clusters in the breeze. Mother had not advised having any long, heavy curtains. "Plenty of fresh air, daughter," she had said, "so that you won't so much mind not having a sleeping porch. The sash-curtains will be just as pretty and will not keep out the breeze."

The bed had been put in the corner between the windows, but Ruth declared that she would pull it out farther every night, so that she could have a gentle breeze blowing across her face all night.

The chairs had been furnished with blue cushions, a gift from Aunt Louise. On the table and chest of drawers were two blue and white Japanese "runners," which Ruth had bought for a quarter. She was very proud of her purchase, and the little room,

though very simple, was a very "homey," dainty one.

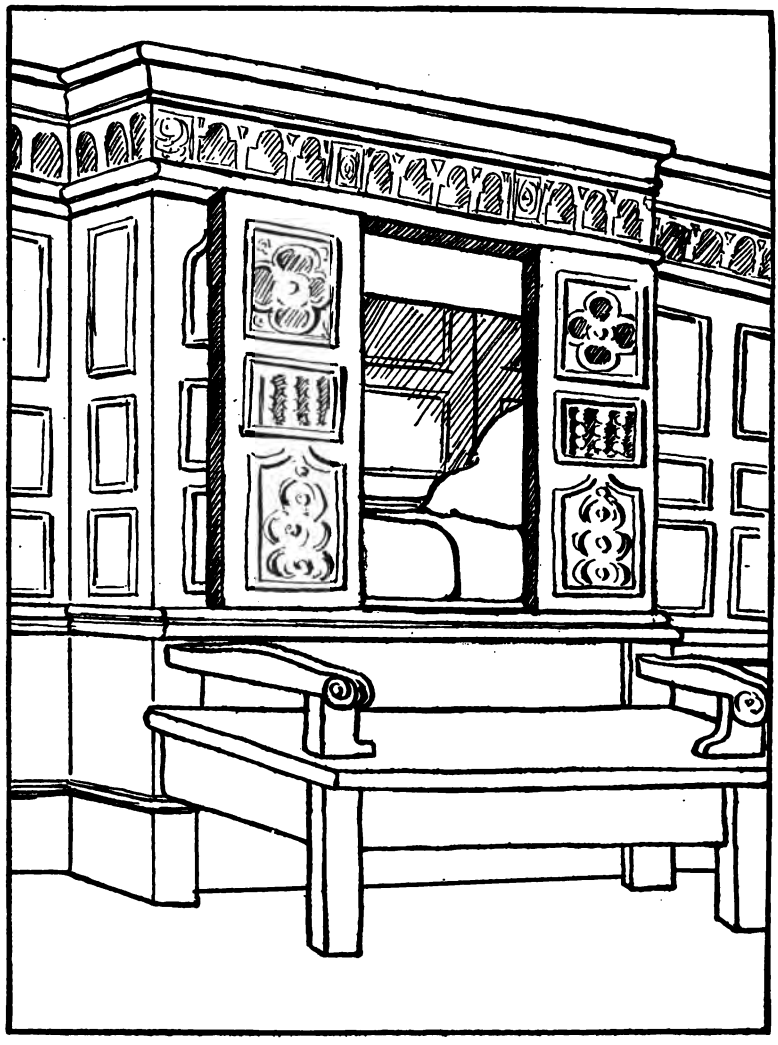
"I'm glad, Ruth," said Mother, "that you love fresh air so well. With that good furnace in the cellar, I am sure that the house will keep warm enough for you to have your windows wide open all night. We are much more lucky that way than our ancestors were. I remember once visiting an old, old house in New York. It was built during the time when the early Dutch settlers lived there and in one bedroom there was an 'alcove' bed."

"What kind of bed was that?"

"It was a bed built into a sort of little alcove, with doors or a curtain in front, so that not a breath of air should chill the sleeper. Such beds were very common in Holland, Brittany, and, I think, were sometimes used in England, too. Doesn't it seem dreadful to think of anyone shutting himself into such a tiny closet with no fresh air all night long?"

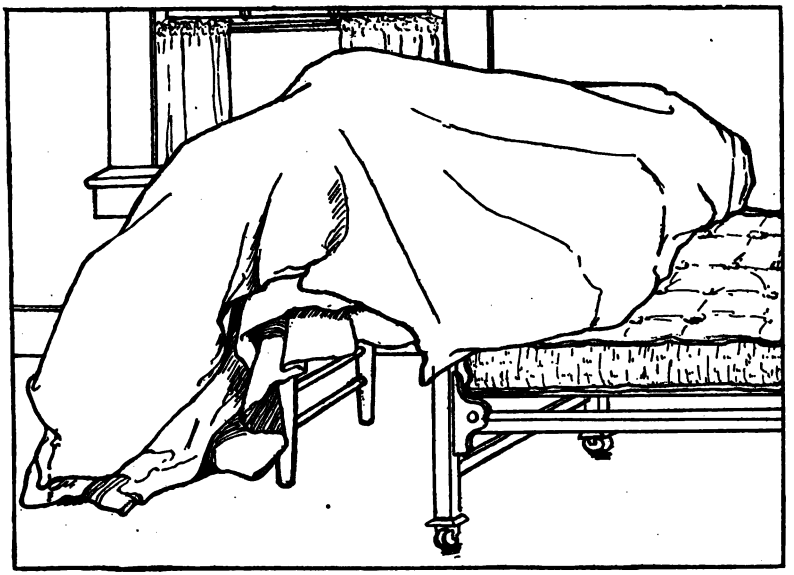
"Goodness, I don't see how they slept at all," said Ruth. "Now, Mother, I'm going to bring over my bedclothes from the big house, so you can help me to make the bed."

Ruth was rather proud of her skill as a bed-maker. The lower sheet of her bed was always stretched smoothly over the mattress and tucked snugly in. The upper sheet was folded carefully over, to protect the tops of the blankets. The unwrinkled covers were tucked in well at the bottom and sides, and the pillow, which she kept "for looks" but never used, stood up smooth and straight. When the bed was made, it looked like the bed of the middle-sized



bear in the fairy-tale—inviting enough to tempt anyone to lie on it.

"You surely do know how to make a bed, Ruthie," said Mother, patting her on the shoulder. "I wonder if you also know how to *keep* a bed sweet and nice."



"Why," said Ruth, "let's see. Every week I'll take off the lower sheet and put it in the wash, use the upper sheet for a lower and put on a clean upper one. And, of course, every morning I'll air the bed well by pulling off the clothes and hanging them over a chair in the window."

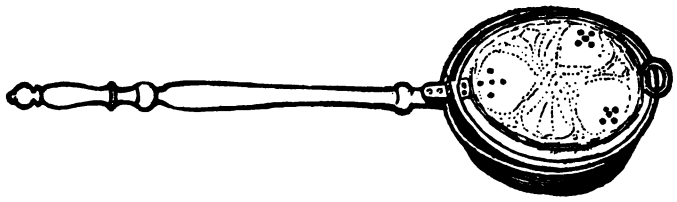
"That's right," replied her mother. "I sometimes wonder how people can stand sleeping in beds that are never decently aired from one end of the

year to the other. Lots of children, and grown people, too, just crawl out of bed as a rabbit does out of its burrow, leaving the bed-clothes in a stuffy mass. Then the person who makes the beds simply pulls the covers into place. That is one reason why I do not favor folding-beds—they are so likely not to be aired."

"Last summer," said Ruth, "Aunt Louise took me to call on an old, old lady out in the country, and she showed us in her kitchen a bed that her grandmother had once used. She called it a 'turn-up' bed. It was just a wooden frame with two legs at one end. The other end was fastened to the wall with hinges and at night it was let down. In the daytime it was fastened up against the wall with a curtain in front of it. The old lady said her grandmother put it in the kitchen because it was the only room in the house that was warm enough to be comfortable at night. She said in the other rooms the water in the pitchers used to freeze perfectly solid at night."

"It isn't much wonder that our grandmothers didn't like to have windows open at night," said Mother, "when we remember how terribly cold their houses were. Two New England ministers, in their diaries, say that the ink froze on their pens while they wrote. Did Aunt Louise show you her old warming-pan? It's one that belonged to her great-aunt for whom she was named. It is about a foot across and four or five inches deep, made of brass with a long wooden handle and a fancy brass cover, full of little holes. It was filled with hot coals and moved

quickly around inside the bed to warm it without burning the sheets. They used to have hand-woven linen sheets in those days, you know. Linen sheets are very cool and comfortable in summer, but very



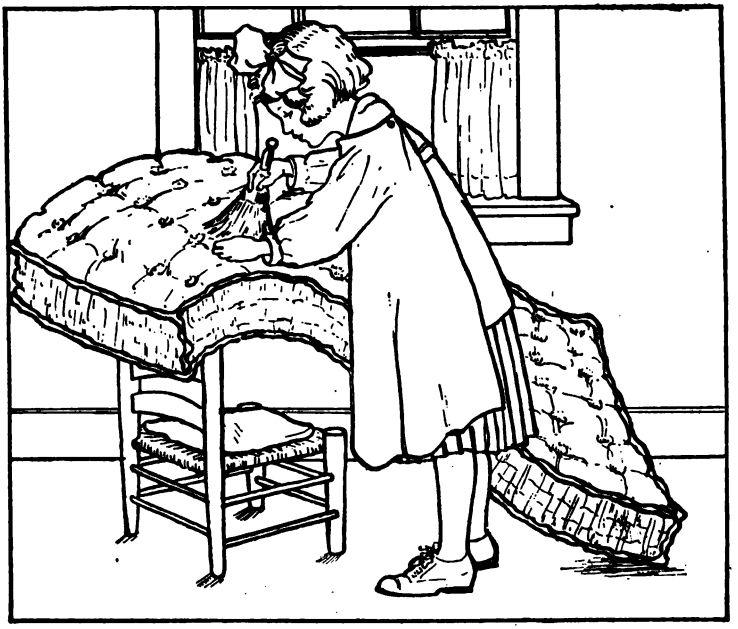
chilly in winter. The warming-pan must have been a real comfort, for it isn't good for anyone to get into a damp, freezing cold bed in a bitter cold room."

"Aunt Louise, on very cold days when the baby takes his nap outdoors, puts a hot water bag into his crib," said Ruth.

"A hot water bag, or even a brick, well wrapped up so it won't burn you, is a very pleasant bed-fellow on a winter night," agreed Mother. "When I was a little girl I used to take my pet kitten to bed. She cuddled down at my feet, and I buried my toes in her warm fur, but one night my mother found Fluffy in the bed and insisted that she must sleep in her basket and that I must find some other kind of foot-warmer. I cried, but now I know that she was right. We want our beds to be perfectly clean and sweet-smelling, and they can't be so if we let our pet animals sleep in them or if we don't air and clean them thoroughly. By the way, Ruth, when did you brush your mattress last?"

"I really don't know." Ruth blushed a little as she said it.

"Well, it's a shame to tear up this freshly-made bed now, but to-morrow I will help you to take the mattress to the window and you can brush it very



thoroughly. Pull up each of the little tufts and brush out the dust from under it, and don't forget to go along all the seams. A mattress ought to be thoroughly brushed like this at least once a week."

"I don't see how a bed can get so very dirty," said Ruth.

"It's surprising how much dust can get into a bed," replied Mother. "Then, too, Ruth, sometimes

if you sit next to a dirty person in the cars, you may get a bug on you, and you should keep a very careful watch that no bug ever gets into your bed or is allowed to stay there."

"Suppose bugs *should* get into our bed, what could we do?" asked Ruth anxiously.

"We should have to take the bed out under the cherry-tree and go over it very thoroughly with a brush dipped into gasoline or kerosene. Of course, we could do this in the house, but you know it is never safe to use gasoline or kerosene where there is fire or gas burning. Besides, one has to go very carefully into all the cracks and the oil is likely to drip, so if it can be done outdoors, it's better."

Just then in walked Father. "My, what a bower for our princess!" he exclaimed. "Lucky that you're not a princess, though, Ruth. You know that the fairy-tale princess lay awake because there was a pea under her twenty feather beds and you have only a good hair mattress."

"I like it ever so much better," declared Ruth.

"Do you, indeed?" laughed Father. "Well, I agree with you. Hair is cleaner, more healthful and in every way nicer than feathers. Oh, by the way, I wonder if you can guess an old riddle that someone told me to-day. Here it is:

"Formed long ago, yet made to-day,
I'm most in use while others sleep;
What few would wish to give away,
But fewer still would wish to keep."

THINGS TO DO

Draw a plan of a bedroom that will be everything you think a bedroom should be. Show where windows and doors belong. Then show where each piece of furniture should be. Now plan the decorations for it, so that it will be beautiful as well as sanitary. If you can, visit a furniture store and look at beautiful, sanitary and simple bedroom furniture. If you are skillful with your hands you will find it interesting to *make* a model of this sanitary bedroom.

If there is a museum in your town where there is old furniture visit it and compare the old furniture with modern kinds.

Find out what kinds of beds, tables, chairs were used by the first settlers in our country. How do they compare with our things?

THINGS TO REMEMBER

We spend nearly a third of our lives in our bedrooms. We should study how to make them both attractive and sanitary. Modern houses are so built and heated that no one has to shut out all the air in order to be warm, as people did long ago. We have learned that fresh air moving over our faces is good for us and not dangerous. We know that cleanliness and sunshine are first aids to health, and they must be first aims in making a good bedroom.

A good bedroom is light. It has as many windows as possible. These are placed on different sides of the room, when possible, to give the best ventilation. If this cannot be, they are opened from top *and* bottom, not from top *or* bottom only. The bedroom has as few draperies as possible. The curtains are light in weight, easily washed and easily pushed back from the windows.

The floor is kept as clean as possible. The covering of the floor should be easily cleaned if the floor is not of bare

wood. The furniture should be plain so it too can be easily and quickly cleaned.

The bed is the most important thing in the room. A good bed has a hair mattress rather than feather beds. A good little housekeeper will brush the mattress once a week, going over every little seam and tuft. Dust gets into beds, and sometimes through accident or carelessness even a bug may get in. If this should happen the best way to destroy the bugs is by applying kerosene or gasoline with a brush to the bed, so it reaches every seam and crack. This must never be done in a house where fire or gas is burning.

A well-made bed has the bottom sheet drawn in tightly, with no wrinkles, the top sheets turned over the blankets or comforts, and all the covers tucked neatly in at sides and bottom. The pillows are smooth and neatly placed. A well kept bed has its covers thrown back before an open window to air as soon as its owner gets up in the morning. A well kept bed is aired at least one-half hour before it is made up again, even in winter. If it is too cold to sleep in, the sheets can be warmed with a hot water bottle or a hot brick wrapped in a clean cloth. Once a week the pillow cases and sheets are changed for fresh ones. Cotton sheets are liked better by many people than linen ones, because linen sheets are very cold in winter. The material is not important, but the cleanliness is. Boys as well as girls should know how to make and care for their beds. Soldiers as well as nurses learn how to make good beds.

TO THINK ABOUT

What makes a good modern bedroom? Were the bedrooms of Colonial days good or poor, according to our ideas to-day? Why?

What is the proper way to make a bed? Can you do it this way? What is the proper way to keep a bed sweet and clean?

CHAPTER XII

The Living-Room

"'Will you walk into my parlor?'
Said the spider to the fly
'It's the prettiest little parlor
That ever you did spy.'"

So sang Ruth as she threw wide the front door for Uncle George to enter.

Uncle George gaily returned Ruth's courtesy with a low bow, swinging his soft hat until it almost touched the floor and then laying it against his heart as he bowed. "Verily, fair damsel," said he, "in all my wanderings, never have mine eyes seen a finer hall nor a fairer hostess!" Then dropping his lordly air, he sank into a chair before the fireplace. "Come sit on my chair-arm, Ruthie, and tell me all the wonders of your house-furnishing."

"Well," said Ruth, "the kitchen is all fixed and so are the bathroom and my room. This room we are going to call the 'living-room.' Dorothy Frost was in yesterday and she said, 'Oh, dear, aren't you going to have any parlor or drawing-room?' in the most snippy sort of voice. Then she started to describe her

grandmother's drawing-room. She said it had a velvet carpet with furniture upholstered in green plush to match and at the windows there were plush portieres. And she said her grandmother had more vases and pictures and ornaments in her parlor than we have in our whole house."

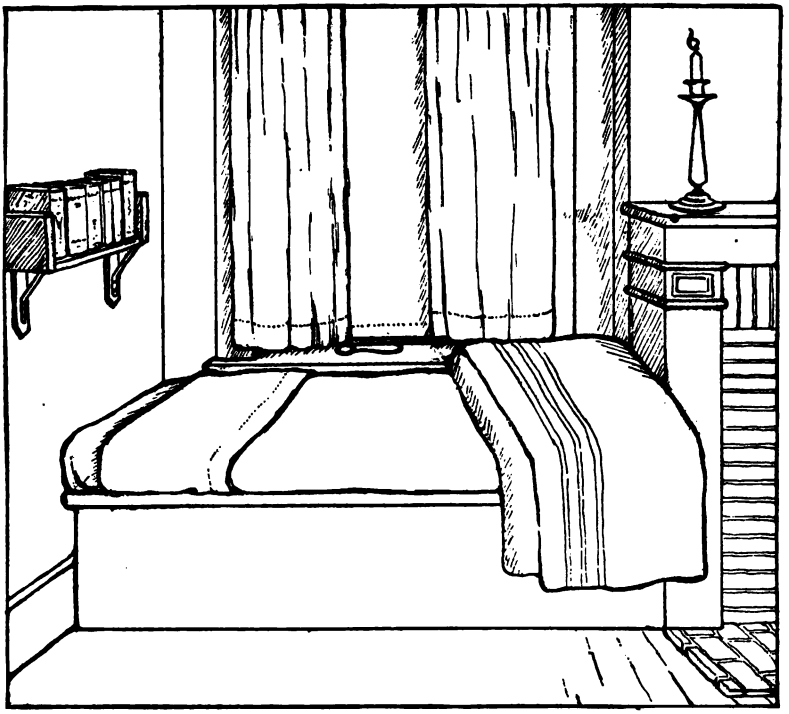
"Probably she has," nodded Uncle George.

"Some people seem to think that a room is meant only to show off how much heavy, ugly stuffed furniture and dusty drapery and how many useless gimcracks they own. Then they pull down the shades and shut all the windows, so the sun and dust shan't hurt their precious belongings. But you know, Ruthie, this is a real *living-room.* A parlor originally meant a room for people to go to when they wanted to have a chance to *talk* together. The French word for talk is 'parler.' And a drawing-room was a 'withdrawing' room, to which people could withdraw when they wanted a quiet time. But this room of yours and Paul's is a room where you are going to eat and work and play and study, a real living-room like the 'hall' where our ancestors used to live."

"Mother has been reading some of Ivanhoe to me, and it tells about the great hall where they all ate and lived. She said they had a great table like a letter T that was just planks lying on a sort of sawhorse and everyone that came in, no matter whether they knew the family or not, was welcome to sit down and eat with the rest."

"Yes," said Uncle George, "in olden times people used to keep 'open house,' as they called it—just as some people do in the country. In the city we can't always be so hospitable to strangers, but I hope you and Paul will have a great many of your friends here and that you can really *live* in your rooms. I'm glad to see that you have bare floors and painted walls, so that everything can easily be kept clean without much work."

"Look, Uncle George," cried Paul, who had just come in, "here is my bed. Isn't it a great scheme? You see, it's really just a box with a hinged lid and a mattress on top. In the daytime, after they are

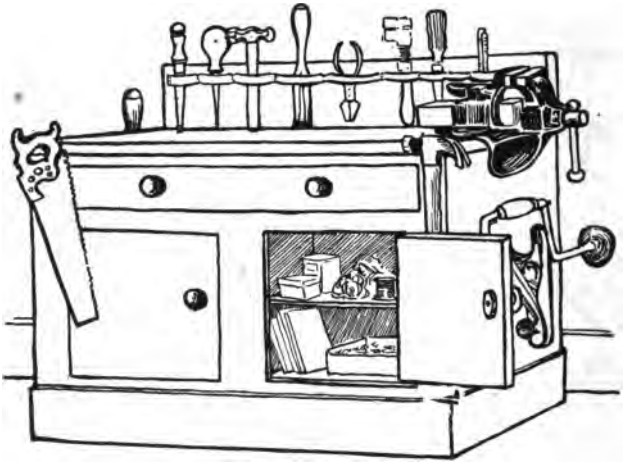


aired on the back porch, the covers go right into the box and it makes a nice window-seat."

"Fine!" agreed Uncle George. "And you are going to use this table for your dinner-table?"

"Yes," said Ruth. "Isn't it nice? It's nothing but a kitchen table, but we stained it green and waxed it. The drawer is so convenient to hold the napkins

and silver. Of course, Paul and I won't eat here every day, but on Saturdays we are going to cook our own dinner and eat it here, and we are going to take turns inviting company. Of course, it isn't so handsome as if we had bought a real mahogany table, but I think it's lots of fun to see how nice you can make things with just a tiny bit of money."

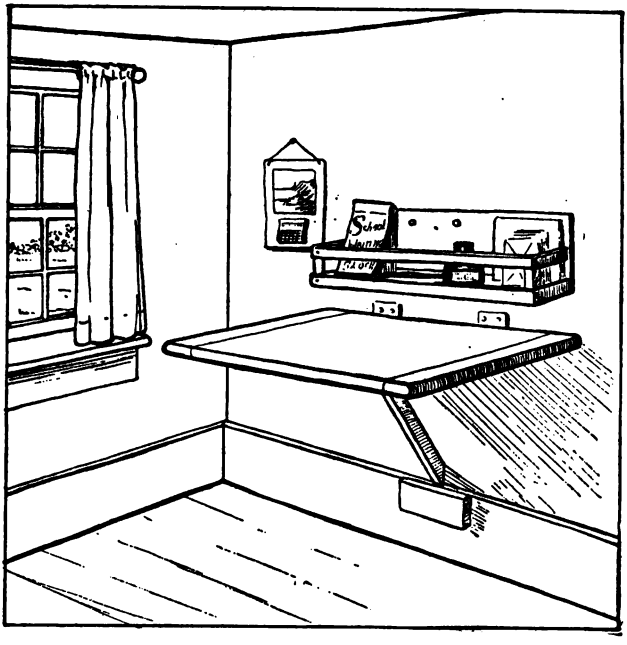


"Good for you, Ruth!" said Uncle George. "It's really lots more fun to use your brains making something pretty for next to nothing than it is to go downtown and just stupidly buy something all made."

"Come look at our work-tables," begged Paul, seizing his uncle's hand and towing him across the room. Against the wall, near the window stood Paul's work-bench—a heavy, old-fashioned washstand with a vise fastened at one end and a fine array of tools hanging from hooks around its edge.

Underneath a pair of doors hid the treasured nails, wire, old lumber and other odds and ends dear to a boy's heart.

"And see my writing-desk!" exclaimed Ruth, pulling Uncle George across the room. Beside the



window, so that the light fell over the writer's left shoulder, a rack had been fastened against the wall and filled with paper, pencils and other materials. Under the rack a smooth board had been hinged to the wall. A stick fastened to it with a hinge supported it when in use. When unused, it lay flat against the wall.

"Isn't it nice?" said Ruth. "The board was a

bread-board, that is why it is so nicely finished. I stained it to match the table and stained the racks and Father helped me to fix the hinges. At least he showed me how, but I really did it all myself. We made it to fold against the wall this way so it wouldn't take up so much room."

"Dear me, Ruth, I begin to think that you will fulfill your dream and become a sure-enough architect one of these days," said her uncle. "This is the most comfortable, pleasant room that I've seen for a long time. I'm quite glad that I had to be out of town while you were furnishing it, for now it is a lovely surprise to see how cleverly you have done it."

"Of course," said Ruth, blushing with pleasure, "Father and Mother helped us some and advised us all the time; but most of it we actually did ourselves. We're going to try to keep it just as nice as it is now. The other day Mother and I went to call on the Nixons, and Mrs. Nixon told Mother that she couldn't keep her house decent. She said, 'The children simply destroy everything and how can I scold them when Mr. Nixon leaves cigar-ends and cigarettes and ashes all over the house?' I'm glad Daddy doesn't smoke. Of course, I couldn't shut him out of our play-house, but I'd hate to have it all smelled up like Jim Nixon's house."

"If bad smells and untidy houses were the only evils caused by tobacco, it wouldn't be so bad," replied Uncle George. "You can smell and see the bad odor and the untidiness, but tobacco does things to a

boy's body and mind and character that you can't see until the boy is badly hurt by it."

"Father told us," said Ruth, "that when he was little he started smoking, but his father persuaded him to save up his money for a bicycle instead. He said he couldn't study at all when he was smoking."

"I don't suppose he could," agreed Uncle George. "You see, your heart is the pump that makes all your body machinery go. Your stomach is like the furnace that keeps the fire going in the engine. Your nerves are the signal system that makes all the parts work together. Now tobacco weakens a boy's heart, upsets his stomach and makes his nerves weak and 'wobbly.' In other words, it attacks him in several places at once. Tobacco never made anyone healthier or stronger—not even a full-grown man, and it has made thousands of boys weak, small, stupid, cowardly and worthless. That is why almost every state in the union has passed a law forbidding anyone to sell or give cigarettes or tobacco to boys. Uncle Sam needs a strong, husky lot of boys and he doesn't want their chances spoiled just because someone wants to make money by selling them poison."

"Well," said Ruth, "I can't see why anyone should want to do something that makes them sick, that makes other people uncomfortable and that costs a lot of money."

"Let's hope, Ruthie," said Uncle George, "that the day is not far off when everyone will feel as you do."

THINGS TO REMEMBER

We have parlors or drawing rooms for company, but we have living-rooms for our own enjoyment. Since our living-rooms are for use and not for show we want them to be comfortable first of all. We want our living-rooms simply furnished, so that they will be easy to keep fresh and clean. We want the colors on walls and floors to be restful and pleasing to ourselves. The walls and wood surfaces should be smooth and easily cleaned. We want no unnecessary ornaments or furniture. Such things crowd us, are easy to break and much trouble to take care of.

The table in our living-room should be large enough to be useful. It need not be expensive, but it should be spotless, of a convenient size and well placed. If a desk is in the living-room it must be placed so that light will fall over the writer's left shoulder from window by day and from lamp by night. Comfortable, strong and plain chairs are better than fancy ones, which may be hard to keep clean and may be uncomfortable to sit in. The comfort of every member of the family who uses the living-room should be looked after. After we have chosen the furnishings for our living-room we must keep it in good condition. First, it must always be neat. Of course this means clean. But it also means that if there are any plants or flowers in the room they are always kept fresh. Magazines and books are placed in order on the table. The writing desk is always tidy. The room is aired every day so that if the air has been spoiled by tobacco smoke it may be freshened again.

We will remember that the nicotine in tobacco is injurious to the hearts of growing boys, to their digestive organs and nervous systems. It is much worse to spoil your future health than to do without tobacco while you are growing.

TO THINK ABOUT

Have you ever seen home-made furniture that you liked? What would be some advantages of home-made furniture? Before a person started to make, or to decorate furniture, what could he do to be sure that he would have something really good when the work was done? Try to find books in your library which give pictures of beautiful furniture. Then make a trip to a furniture store and pick out the pieces you find like the most beautiful pictures. Then decide what you consider the marks of beautiful furniture.

What kinds of draperies should be selected for comfort and beauty and health?

How should the living-room be furnished so that it will be easy to keep clean?

THINGS TO DO

Just as you designed a bedroom, now design a living-room. Plan the shape, the location in the house, the furniture, the furnishings you think would make a comfortable and attractive living-room. Could you make a painting of it?

Can you find pictures in magazines of very simple living-rooms? What do you think are the best things about these living-rooms?

Go to a furniture store some day and pick out draperies and furniture which are simple and beautiful. How cheaply could you furnish a pretty room?

CHAPTER XIII

A Modern Crusade

It was such a warm afternoon that Uncle George had almost fallen asleep over his newspaper. He was just dozing off when he was roused by a shout from Paul, who ran up the path waving a paper over his head.

"Look, Uncle George!" he cried. "I've won my certificate! I'm a Page!"

"Bless my soul," cried Uncle George, "I thought Knights and Pages lived in the olden days, not in these commonplace times. What sort of Page are you and who made you one?"

"I made myself one," replied Paul proudly. As he spoke, he spread out on Uncle George's knee the paper, which was headed "Modern Health Crusaders."

"You see, Uncle George," he continued, "two weeks ago my teacher, Miss Hood, gave the class a long talk about tuberculosis. She told us what a dreadful lot of children and young people die of it—one every three minutes here in America, she said. Then she explained how it comes from a germ and how when a person who has tuberculosis spits or sneezes or coughs the germs fly out of his mouth. She said that's one reason why we ought never to drink from a public cup, or put things into our mouths, or spit in the street."

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"What are these 'chores' that are written down here?" asked Uncle George?

"Those are the things we have to do to help us fight tuberculosis and other diseases. You see, Miss Hood told us the story of St. George and how he killed the dragon that was eating up the little children. Then she said that tuberculosis was like a modern dragon and that if it was to be ended, we must all learn to be very strong, like St. George."

"And these are the chores that you must do in order to be strong?" asked Uncle George.

"Yes," said Paul. "Mother puts a cross every night on my record for every chore that I have done. I've done them for two weeks now, so to-day Miss Hood gave me this certificate, to show that I am a Page in the Modern Health Crusaders. If I keep it up for three more weeks, I shall be a Squire and have a round badge. Then later you get to be a Knight and finally a Knight Banneret. The Knight Bannerets have gold-plated pins. You have to do the chores for fifteen weeks to be a Knight Banneret; but of course they allow for your forgetting once in a while—only you don't get to be a Knight so soon. It's lots of fun. Our whole school has joined and there are going to be tournaments to see which class can make the best record. Every year there is a National Tournament, to see which school can make the best score in Health Knighthood."

While Paul had been talking excitedly on, Uncle George had been reading the list of Health Chores. Here they are:

1. I washed my hands before each meal to-day.

2. I washed not only my face but my ears and neck and I cleaned my finger-nails to-day.

3. I kept fingers, pencils and everything likely to be unclean or injurious out of my mouth and nose to-day.

4. I brushed my teeth thoroughly after breakfast and after the evening meal to-day.

5. I took ten or more slow, deep breaths of fresh air to-day. I was careful to protect others if I spit, coughed or sneezed.

6. I played outdoors or with windows open more than thirty minutes to-day.

7. I was in bed ten hours or more last night and kept my windows open.

8. I drank four glasses of water, including a drink before each meal, and drank no tea, coffee, nor other injurious drinks to-day.

9. I tried to eat only wholesome food and to eat slowly. I went to toilet at my regular time.

10. I tried hard to-day to sit up and stand up straight; to keep neat, cheerful and clean-minded; and to be helpful to others.

11. I took a full bath on each of the days of the week that are checked (x).

Total number of chores done each day....

"Now that is what I call a fine idea," said Uncle George. "I think I'd like to become a Crusader myself. You know that while Aunt Lou and the baby are away I'm going to stay here with you. Suppose you

ask Miss Hood whether she will let me have a score card, too, and you and I will see which one can remember the best."

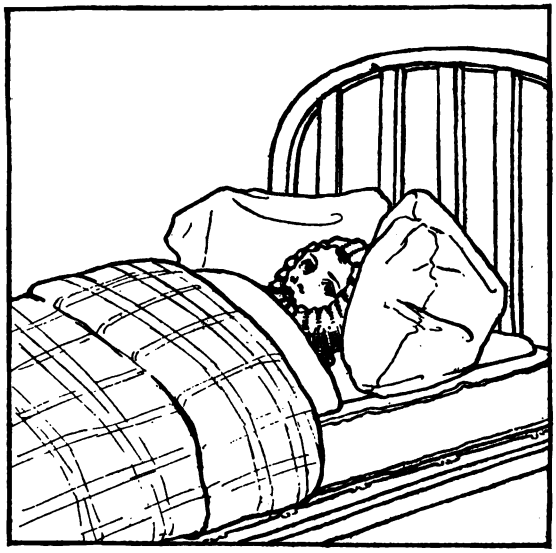
"That will be great!" cried Paul enthusiastically. "I've got the start of you, though, for I've been doing it two weeks and it's lots easier for me to remember than it was at first."

"I think," said Uncle George, "that I will put my tent cot on the back porch of the play-house, if you are willing. Then I can get a lot of fresh air."

"I love sleeping outdoors," replied Paul. "All last winter I slept out on our porch. Mother used to make my covers into a sleeping-bag. She tucked them under the pad that covers the mattress; nothing but the top quilt was tucked under the mattress itself. It kept me fine and warm."

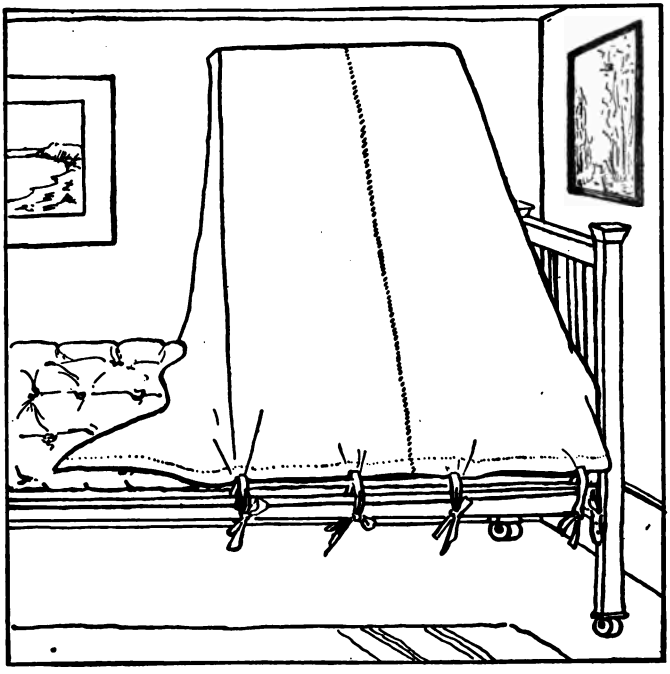
"Did your head get cold?" asked Uncle George.

"Yes, at first, but Mother knitted me a helmet like the soldiers had. I pulled it way round my face, so just my nose stuck out and I didn't feel cold even one night when it was three below zero."



"We haven't any sleeping-porch at our house," said Uncle George, "but this winter I'm going to rig up a window tent for my bed. Did you ever see one? I'm going to take two heavy sheets and sew them together along the sides. Then I shall tack the top to the top of the window-casing and along down the sides of the window. The bottom I shall tie with tape to the side-rail of my bed, after I am in it. You can buy rather fancier tents, but I'm sure mine will do perfectly well. It will give me all the fresh air

I want and on the very cold nights my room will not get so dreadfully cold that I shall hate to dress in it."



"Miss Hood told us," said Paul, "that before the white men came to America the Indians were very strong and well, because they lived outdoors so much, but that after they began to live in houses they came down with tuberculosis, lots of them."

"I don't doubt it," nodded Uncle George. "You know, Paul, that there is no medicine to cure tuberculosis. Fresh air, sunshine, good food, right exercise and plenty of sleep are the only remedies. Of course,

there are tuberculosis germs about most of the time; but there is no use in fretting very much about germs. I don't mean that you should be careless and use public cups or towels or put things into your mouth. It is just as important to keep yourself in first-rate condition, after all, as to avoid germs. Then, if a germ should happen along, he would take one look at your red cheeks and bright eyes and straight figure and he would say, 'No use for me to tackle him!' "

"Yes," laughed Paul. "If a germ saw me, I guess he'd move right on until he saw Kid Frost. He's awfully pale and sickly, you know. Then Mr. Germ would just go for poor Kid and finish him."

"Has Kid joined the Health Crusaders?" inquired Uncle George.

"Yes," said Paul, "but he's having an awful time to remember. Kid's all right, though. He'll get his badge in time."

They sat silent for a time. Then Uncle George said, "Do you know, Paul, I've been thinking about the old Crusaders who went to Palestine to get the Saviour's tomb away from the heathen. They were brave men and doubtless thought they were doing a fine thing. But how much more worth while your Crusade is—not to rescue an empty tomb from a lot of other men, but to save your body and others' bodies from sickness and death. While we've been sitting here, I made up some verses about it. Would you like to hear them?"

Paul nodded and Uncle George repeated these lines:

"In days of old, Crusaders bold,
A glittering cavalcade,
To save the Holy Sepulchre
Rode forth on a crusade.

"Not ours to-day to fight as they
With battle-axe and brand;
'Tis for no sepulchre we strive
And in no far-off land.

"We seek to save God's temple,
In His own image made,
From sickness, suffering and death.
This is our new Crusade!"

THINGS TO DO

Ask your teacher to write to the National Tuberculosis Association, 381 Fourth Avenue, New York, and get for your class some score-cards and directions for starting a Modern Health Crusade. When you have learned how to do it, join one of the National Tournaments. How good a score can you make for a month?

THINGS TO REMEMBER

Sickness and disease are nearly always preventable. The way to fight them is by acquiring habits that will make us so healthy that germs can do us no harm. One of the worst of these germs causes tuberculosis. No *medicine* that we yet know will cure tuberculosis, but it *can be prevented* by good food, rest, fresh air and clean ways of living. People who have it can be taught how to prevent its spread and how to improve their health by good ways of living.

Some people fear that fresh air will give them colds. Nothing is more untrue. No one was ever hurt by sleeping outdoors or in fresh air, if his body had been warm enough. So protect your head with a cap when you sleep outdoors. Wear warm sleeping garments. Use plenty of covers. Get the habit of sleeping with windows open. Remember that to do a thing once in a while is not so valuable as to do it every day at the same time. Each time we do anything it gets easier to do that thing. Soon what was hard to do becomes a habit. We form health habits as we do any other habits. Our health is no better than our health habits.*

TO THINK ABOUT

Can you give a list of eleven health habits of the Modern Health Crusade? How many of these habits have *you?*

Can you explain why each one was chosen as a habit worth forming?

Can you keep all eleven habits for one week? Two weeks?

How long has it taken you to become a page? A knight?

What arguments will you use to persuade some other boy or girl to join the Modern Health Crusade?

* The Modern Health Crusade is a fight to get good health habits. Read again the list of these habits on the card Paul showed his Uncle George. Every boy or girl should possess these habits before he is fourteen years old.

CHAPTER XIV

Screens and Traps

"And now," said Father, "all that the house needs is a set of good, stout screens at all the windows to keep out the mosquitoes and flies."

"It makes me cross," said Uncle George, "to think that Pleasantville doesn't get rid of its flies and mosquitoes—then we should not need screens. I went past Mr. Mullins' stable to-day and I don't believe he has had the manure carted away for weeks. The flies are breeding in it by thousands. It's no wonder that his grocery store is full of them."

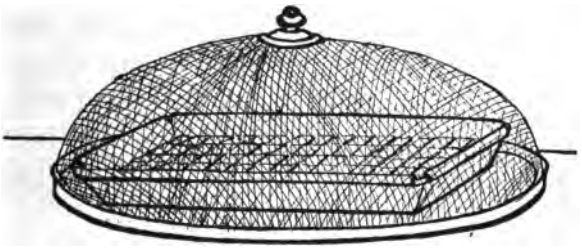
"And every house near that stable is pestered with them, too," said Mother. "It's rather late for a fly-killing campaign this summer, but next year, early in the spring, I really think we ought to start one. If all the stables and outhouses are made clean and all the garbage pails covered, so that the flies have no place to lay their eggs and nothing to eat, we may be able, in another year, to do almost without screens."

"It doesn't seem fair, does it?" said Paul. "Just because Mr. Mullins is lazy and careless, we have to buy screens for our house. If he lets the flies lay eggs in his barn, he ought to pay for our screens."

"I quite agree with you, Paul. It *isn't* fair at all," agreed Mother. "But that is what the Bible means when it says, 'Ye are all members one of another.' If any one of us is selfish and careless it

makes trouble for the rest. People don't want to live each one off by himself. We want to live together, and to live together happily, every one must do his part."

"I think," put in Ruth, "that we had better get some wire dish covers. The other day, when I was at Hattie's house, we made some fudge and put it out on the back porch to cool. You know Hattie lives right next to Mr. Mullins. The flies were just swarming around there, so Hattie put a wire cover over



the pan and we sat and laughed at the hungry way the flies gathered and tried to get at the fudge."

"A good idea, Ruthie," said Mother. "I'll make you a present of two or three, so that no food need ever be uncovered in your kitchen. Dear me, how different things are now from what they were when I was a little girl. Of course, flies have always been a nuisance, but people didn't use to realize that they were a danger."

"Father told us a lot about them last year," said Paul. "He explained how they carry disease germs on their wings and feet, so that people who are dirty

or *live near* dirty people are liable to get typhoid and cholera germs in their food."

"Well," said Mother, "luckily for us, our neighbors are pretty clean. There aren't many stables in town and all the houses have nice clean bathrooms, so there are no filthy outhouses for the flies to get to. However, we will have screens in all the windows and at the kitchen door. Ruth and Paul will be very careful to cover all the food, and our garbage pail has a tight cover. Then, just to catch any fly that *may* find his way in, we'll buy some of the fly-paper that comes in long strips and can be hung from the gas-jet. You know, flies like to light on anything that is hanging."

"I really don't think that our screens will let many flies bother us this summer," said Uncle George, "but I feel like the man who said that screens made him feel as if he were in prison. He decided to kill and trap all the flies, so that *they* should be in prison and he could be free. Next summer we'll start a fly campaign here in Pleasantville and then we all can burn up our screens."

"Oh, no, Uncle George," cried Ruth, "you are forgetting about the mosquitoes. We'll need the screens for them."

"Well, we'll have a mosquito campaign, too," said Uncle George.

"Will you give a prize to the fellow that kills the most?" asked Paul.

"I don't think that would do very much good," replied his uncle. "You see, Paul, while you are killing a few hundred, thousands would be laying their eggs."

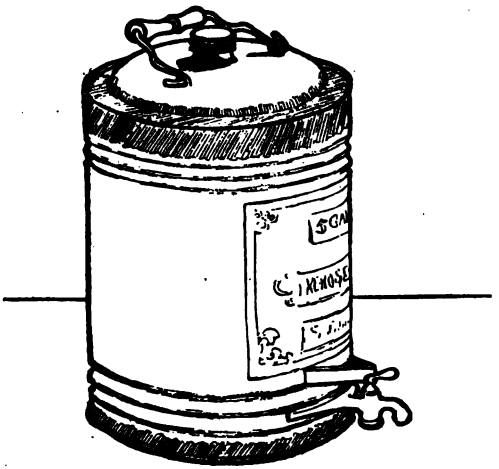
"Do they lay their eggs in stables and outhouses, like the flies?" asked Ruth.

"No, they lay them in damp places or in pools. Mrs. Mosquito is fond of standing water and will lay her eggs in an open rain-barrel, a partly-filled drain, or any little pool of water. I remember that when I was a boy my grandmother's family were always annoyed with mosquitoes, until a sink was put into her kitchen and she stopped throwing water out by the back porch and a drain was put in. Before, there had always been a wet spot there and the mosquitoes bred in it."

"But suppose you live near a pool, what can you do?" inquired Paul.

"There is a very sure way to kill the baby mos-

quitoes," said Uncle George. "You see, when the eggs hatch, the baby mosquitoes, or wigglers, come up to the top of the water to breathe. Now, if a little kerosene oil is poured on the water, the wigglers cannot get through to the air and will all drown. The



best thing is to drain all swampy places and the next is to oil them."

"Aunt Louise always puts a mosquito net over the baby when he has his nap and at night, too. She tucks it in very carefully, so no flies or mosquitoes can reach him," said Mother. "Of course, we don't in this part of the country get malaria or yellow fever from the mosquitoes very often, as they do in the south, but they break one's rest and are a great nuisance."

"Listen, folks," said Father, who had not been

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joining in the talk, "how is this for a verse about flies and mosquitoes?

"There was a young fellow named Guy,
Who vowed he would catch every fly,
But while swarms he was catching,
More swarms kept on hatching
In the dirt in a stable close by.

"Another spry youngster called Peter
Said: 'Just watch me catch every skeeter!'
But while scores he dispatched,
In the swamp, millions hatched,
For the skeeters were fleeter than Peter.

"So on Peter and Guy 'twas impressed
That the way to kill off any pest
Is not merely by slapping
And starving and trapping,
But destroying the eggs and the nest."

THINGS TO DO

Gather together some energetic boys and girls and form an Anti-fly and Mosquito League. Let each one hunt out all the possible breeding places of flies or mosquitoes in his or her neighborhood. Get together and make each person responsible for either destroying the breeding place or getting some grown people to do it. Next make a pledge to shut every screen door after you tightly, and get others to do so; help keep the garbage can covered. Let the secretary of your club write to the agricultural extension department of the International Harvester Company, of Chicago, Ill., for plans for a fly-trap. Each member of the club should help make at least one trap and *use* it. Each member of the club should be responsible for hunting out and draining off standing water on his prem-

ises. Make posters showing the dangers from flies or mosquitoes. Think of other things to do. Ask some grown people to act as judges to decide if the neighborhood is made better by your club.

Collect some "wigglers" in pond water and fill two jars with it. Cover the jars with mosquito netting. Watch the changes in the wigglers until *one* or *two* are mosquitoes. Then pour some kerosene or other oil through the netting onto the water. What happens to the "wigglers" and "tumblers" left in the jar? Put a goldfish into the other jar.

From your experiments, what have you learned about destroying mosquitoes? Why is it better to destroy these young ones in the ponds than to kill single grown mosquitoes?

THINGS TO REMEMBER

No good citizen allows a fly on his premises if he can help it. It is easy to get rid of flies by following these rules:

1. Every window and door must have well fitting screens. This includes windows of basements and attics.
2. All food in the house should be kept covered if it is not in a screened house. Wire dish covers are good for this purpose.
3. Fly-papers should be used to catch any flies that succeed in getting into the house.
4. Garbage pails must be kept clean. They must be emptied often. They must have well-fitting lids.
5. All manure should be carried away from stables daily. But if it is kept it should be screened and treated with a substance which will destroy flies' eggs.
6. These other ways are better than fly-swatters. But "swatters," too, should be at hand if flies are numerous.
7. In the country, where people do not have bathrooms

with running water, the toilets should be so screened or cared for that no flies can visit them.

One kind of mosquito carries malaria, and in the South another kind carries yellow fever. Even when mosquitoes are harmless they are annoying and should be destroyed. Like flies, mosquitoes are best fought by destroying their breeding places. The female lays eggs in water—a teaspoonful is enough. These eggs hatch in a few hours or a day into wigglers or larvæ. After feeding for about six days the wigglers become tumblers—or pupæ. After about another six days out come the full fledged mosquitoes, which fly away to feed on plant juices or the blood of people whom they bite. From these facts we can easily see that the best ways to destroy mosquitoes are:

1. By draining all ponds and pools and by removing all stagnant water. Even very small amounts.

2. By oiling ponds that can't be drained.

Sleeping children should always be protected from flies and mosquitoes by nets unless they are in screened rooms.

TO THINK ABOUT

What seven rules can you think of which will keep flies away from our premises?

How many of these things can a child do?

Can you tell the story of a mosquito from the time the egg is laid till it is hatched?

How does knowing this story help us to fight mosquitoes?

Are there mosquitoes around your home? If there are, find their breeding place. What can you do to get rid of them?

CHAPTER XV

More Screens

The rap, rap, rap of a hammer came from under Ruth's window, accompanied by Father's cheerful voice, singing,

> "When I was a bachelor I lived by myself,
> And all the bread and cheese I got
> I put upon the shelf;
> The rats and the mice they led me such a life
> I had to go to London to buy me a wife."

"What are you doing, Daddy?" asked Ruth, poking her head out of the window. "I thought you had already tacked a wire screen over each cellar window. What are you putting that heavy wire over it for?"

Ruth's question was natural. The cellar window was already covered with fine wire netting, such as had been put on all the windows to keep out the flies and mosquitoes. And yet Father was tacking on some heavy, galvanized-wire netting.

Father looked up and gave a military salute by touching the hammer to his hat brim. "Please ma'am," said he, "I got the wire for the same reason that the fellow in the rhyme went to get a wife—because of the rats and mice. Any able-bodied mouse—and, of course, any rat—could gnaw through a fly-screen without half trying, but I fancy this heavy chicken-wire will be too much for them."

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"Why," said Ruth, "I didn't suppose there were many rats and mice around here. I think mice are so cunning. Rats and mice don't really do very much harm, do they?"

"I don't suppose there are so many here in Pleasantville as in places where there are a great many warehouses, grain elevators and big markets where they can find lots of food. Still, there are plenty of them. You know, Ruth, in cities there are easily as many rats and mice as there are people, and in the country, where there are not large numbers of people and where there are grain-fields for the wild field mice to live in, there are about four times as many rats and mice as there are humans. As for their not doing much harm, a rat or mouse will eat or spoil property valued at one-half cent a day."

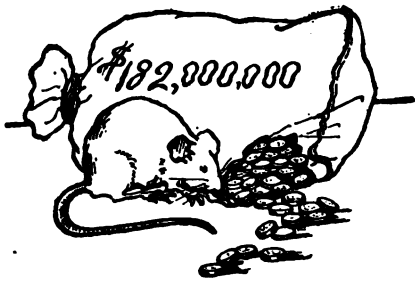
"Dear me," exclaimed Ruth, "then if there are as many of them as there are people, that would make —let's see, the population of the United States is—"

"Call it roughly one hundred million," said Father. "Then, if each rat costs us half a cent a day, he will cost us how much a year?"

"One-half of 365 days is 182½. That would be $1.82 for each rat or mouse. And if there are a hundred million of them, they would cost us every year $182,000,000!" cried Ruth, in horrified tones. "Oh, I must have multiplied wrong. Surely it can't be such a frightful amount as that."

"No, your multiplication was all right, Ruthie. You see rats raise as many as five families a year and there are usually about eight baby rats in each

family. If they did not have so many enemies to kill them off, we should fare as badly as the people of Hamlin did. You remember the Pied Piper of Hamlin, don't you, and how he saved the city from the rats and mice that were ruining it?"

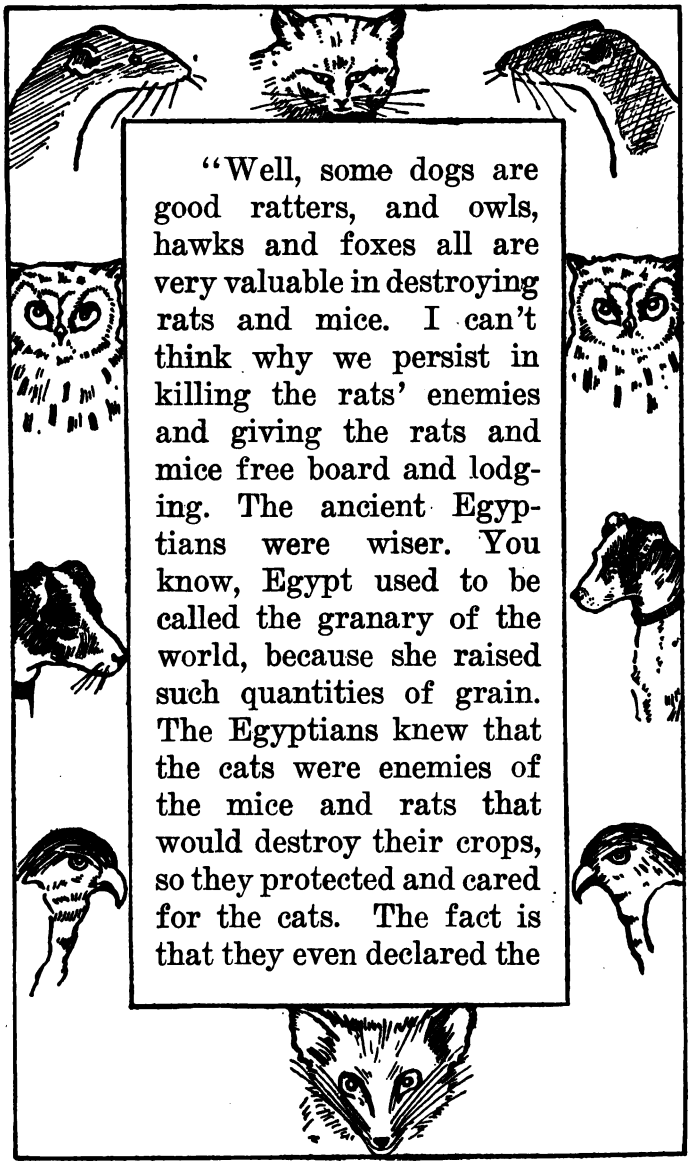


"Oh, yes," said Ruth, "the poem is in my reader. He played on a magic pipe and the rats and mice followed him and were drowned in the river."

"The river Weser in the poem must have been a wide one," said Father, "for rats are good swimmers. They can swim half a mile. There's another poem that you must have read, I think. It tells about a wicked Bishop Hatto who took refuge in a high tower in the river Rhine, but the rats and mice swam across the river and ate him up.

> "For they have swum over the river so deep,
> And they have climbed the shores so steep;
> And up the tower their way is bent,
> To do the work for which they were sent."

"Goodness!" cried Ruth. "It makes my blood run cold. I like the story of Dick Whittington's cat, that ate the mice and rats, better. But, Daddy, you said rats and mice had lots of enemies. Of course, cats are enemies to them, but what other enemies have they?"



"Well, some dogs are good ratters, and owls, hawks and foxes all are very valuable in destroying rats and mice. I can't think why we persist in killing the rats' enemies and giving the rats and mice free board and lodging. The ancient Egyptians were wiser. You know, Egypt used to be called the granary of the world, because she raised such quantities of grain. The Egyptians knew that the cats were enemies of the mice and rats that would destroy their crops, so they protected and cared for the cats. The fact is that they even declared the

cats sacred animals, punished anyone who hurt them and buried them in state in a special cemetery. Cat-mummies have been found in large numbers."

"How funny!" cried Ruth. "When my kittie dies, I'm going to make her a nice grave under the cherry-tree, but I don't think she'd like to be a mummy, do you?"

"No; if she feels as I do about it, I'm sure she wouldn't like it at all," said Father. "There now, that screen is on, all secure. You see, Ruth, the foundations of the house are brick and cement, so I hardly think the rats could get in that way, and we purposely left an open space under the back porch instead of boarding it up, and all our walks are cinders, instead of board-walks, so the rats and mice won't find any hiding-places ready for them. A number of years ago, when I was in San Francisco, the city was threatened with the plague."

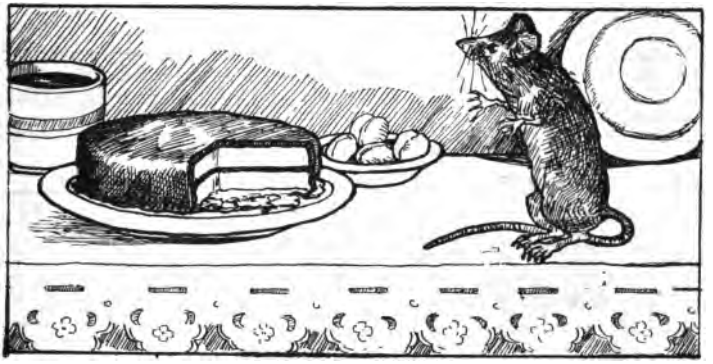
"What's that?" inquired Ruth.

"A very dreadful disease. Rats often get it, and if you are bitten by a flea from a rat that has the plague, you will probably catch it. Well, when San Francisco people found that the plague was among them and likely to be spread, they laid almost six and a half million square feet of concrete to take the place of wooden walks, stable-floors, area-ways and other places where the rats hid."

"Well, I think our house is pretty safe," said Ruth; "it's so nice and new."

"I think it is, but don't let that make you careless. Just as long as rats and mice know they can

get a 'free lunch' in a house, they are likely to come to it. When I was at college I used to wonder why my room was so attractive to mice. Almost every night I could hear a mouse rustling among the papers in my desk. Finally I found that a classmate who studied in my room in the afternoon kept up his spirits while he was studying by eating crackers and cookies. He threw the crumby paper into my waste-

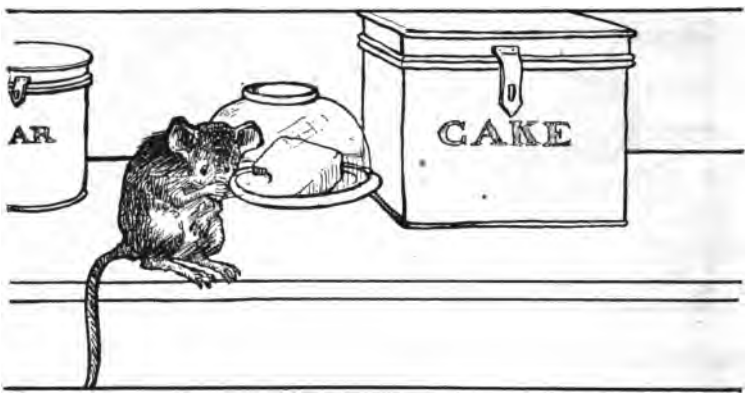


basket and, of course, Miss Mouse thought I was inviting her to come and dine."

"Oh, Mother saw that we had glass and china jars to hold all our flour and sugar and crackers and things in our new pantry. We aren't going to just put them 'on the shelf,' like the man in the Mother Goose rhyme," said Ruth. "At Mrs. Frost's house, one day, Dorothy Frost said, 'Come out in the pantry, Ruth, and have a piece of my birthday cake. There was a lot left over last night.' So we went out into the kitchen pantry, and what do you think? The cake was on a plate on the shelf and those nasty mice

had eaten most all of it and had walked all over it. You could see the mark of their feet on the chocolate icing."

"That's the kind of pantry that makes a mouse glad, but yours is the kind that makes him sad," nodded Father. "You must remember, too, to keep the cover on the garbage pail. Then the rats and mice will give you a wide berth and go where the food is more plentiful."



"I'd much rather do that than have a house full of them and then kill them in traps, the way the Frosts do," said Ruth.

"So would I," agreed Father. "But sometimes a person moves into a place where there are rats and mice and then he is forced to kill them. Besides, they kill our song birds and suck their eggs and murder our baby chickens—so I think we do quite right in killing them as mercifully as we can. We should all learn to keep them away by giving them nothing to

eat, making our houses rat-proof, stopping up their holes with cement and broken glass, leaving no dark places for them to hide in and trapping them or poisoning them. But I don't advise poison. It's too dangerous and Rover or Pussy might get at it."

"I never knew before how much harm rats and mice do," said Ruth thoughtfully.

"Hullo!" cried Paul, who had come up and been listening. "I know a conundrum that Uncle George made up about rats, 'When is a rat troublesome?' Do you give up? 'When he's a-gnawing!' And from what you say, Daddy, I guess he *is* pretty 'annoying,' isn't he?"

THINGS TO DO

If rats and mice are in your neighborhood organize an Anti Mouse and Rat Club. Promise to leave no food of any kind exposed; to keep a lookout for rats and mice, and to learn how they can be controlled. Decide what measures you can take. Keep a record for six months of what you do. If successful let your secretary write an account of work to your newspaper and have it published.

Look in some bird book and find as many kinds of hawks and owls as you can. Learn the food of each. Which are man's aids against mice?

THINGS TO REMEMBER

Rats and mice are among our dangerous enemies. They carry germs of disease. They destroy young chickens and song birds. They destroy food in immense amounts. They injure property. They cause fires by gnawing matches.

One rat or mouse may do little damage. But a rat has babies about six times a year and as many as ten at

a time. It is because there are so many of them that they do so much harm. There are four ways to get rid of them.

1. Have no food about for them. All food in our homes should be in ice box, screened closet or in metal, glass or china covered dishes. Food in stores, barns or other places should be protected, too, by some kind of rat-proof receptacle.

2. Keep rats and mice out of all protected places where they could raise families. Screen with heavy iron wire screens basement windows and doors. Have solid foundations of tight concrete or stone. Have concrete or cinder walks, never board walks. Have spaces under porches or steps open to let cats or terriers get at any mice or rats that may gather there. Fill up their holes with cement and broken glass.

3. Traps will help out these ways of preventing mice. It is a bad plan to use poison for rats, because the poisons are dangerous to children and pet animals. We do not want the rats to die within the house walls.

4. By encouraging the enemies of rats and mice we can keep down their numbers. These enemies are cats, terriers, owls and hawks. It is better to lose a chicken to a hawk or an owl now and then than to kill the bird that eats hundreds of mice in its lifetime.

TO THINK ABOUT

Why does the U. S. Government publish books and papers to tell people how to get rid of rats and mice?

How can we keep rats and mice from getting food in our houses?

How can we keep rats and mice from finding homes in our houses?

What enemies have rats and mice? How can we protect these enemies of rats and mice? How many of these can you recognize?

What can you do to keep mice out of your home?

CHAPTER XVI

Cleaning Day

"Mother," said Ruth, looking up from her saucer of oatmeal one Saturday morning, "when are Aunt Louise and the baby coming home?"

"Uncle George said last night that he was going up to Skytop to-day to bring them back with him," replied Mother. "I am so anxious to see Baby—he will have grown so much in these two months. It doesn't seem possible that September is here already."

"School begins Monday," chimed in Paul. "I never saw such a short vacation."

"Being so busy with the play-house made it seem short," said Ruth. "Oh, Mother, just think! Aunt Louise hasn't seen the play-house at all. Do let's have a 'housewarming,' as Mrs. Vincent had when she built her new house and invite Aunt Louise to it."

"I think that would be lovely," agreed Mother. "We can make the house quite spick and span and do our marketing to-day and celebrate the housewarming on Sunday afternoon."

"Great!" cried Paul. "I'll tell you what, Daddy, let's you and I plan the eats while Ruth does the sweeping and cleaning."

"If that isn't just like a boy!" exclaimed Ruth. "They always want to do the eating while the girls do all the disagreeable things."

"Oh, you——" began Paul.

"Come, come," interrupted Mother. "Let's not forget that the cornerstone of our play-house is peace and coöperation. We'll all help plan what Paul calls the 'eats' and we'll all help with the cleaning. But I'm sorry, Ruth, that you class cleaning among 'disagreeable' things."

"Well," admitted Ruth, "I don't really suppose I've ever done enough cleaning to know very much about it, and I'm always away at school when you are doing the cleaning, but I remember at the farm last summer Hannah used to hate Fridays when she swept. The house was all upset and Hannah was so tired and cross."

"It *is* hard work to clean a house that is full of carpets, heavy curtains and upholstered furniture, like Uncle Silas's farmhouse," said Mother. "But our floors are bare, with only small, light rugs. We have nothing but thin, washable curtains, and our chairs have cushions that can be taken outdoors and beaten. Come along, folks, and let's see how quickly and well we can put things into apple-pie order."

As Father had some drawing to do, he was excused, but Ruth and Paul followed Mother's lead back to the play-house.

"Now," said Mother, "if the play-house were not brand new, we should have to give it a regular, thorough cleaning, but as it is, I don't really think we shall find much dirt. Suppose, Paul, you clean the bathroom, while Ruth and I start on her room."

Paul, who was a little offended still at Ruth's taunting him for being interested only in eating,

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vowed that when he got through with that bathroom it should be the cleanest one in Pleasantville. Armed with a soft cloth and a bar of white soap, he washed and wiped the tiling along the wall. Then the paint was carefully wiped off. "Not too much rubbing on the paint, son," cautioned mother from the next room. "All it needs is just enough to take off any finger-marks. Scrubbing paint with washing powders and sapolio takes off not only the dirt, but the paint, too."

The tub was already clean, but Paul gave it an extra rub with warm water and soap. Then the wash-stand was washed and wiped dry and the toilet-bowl was carefully washed out with soapy water and a long-handled brush that Mother had bought especially for it. Next the faucets were polished with a piece of chamois and a little nickel polish. Last, he washed and dried the tile floor. Paul looked around the room with a satisfied sigh and called to Ruth, "Come in here and see whether I can clean or not!"

"You certainly can," declared Ruth. "You know, Paul, I didn't say boys *couldn't* do things just as well as girls. All I said was that they'd rather eat than work."

"Let's see your room," said Paul.

"Doesn't it look nice?" said Ruth, proudly. It did look very nice, indeed. Mother had taken the three small rugs out on the piazza and shaken and brushed them while Ruth wiped up the floor with a cloth on which she had poured a very little kerosene. Then Ruth had wiped off the paint while Mother had dusted the furniture with a damp cloth. Lastly, Ruth

had wiped off all the pictures and replaced the rugs.

"If this weren't a new house, we ought to wipe down the walls with a damp cloth," said Mother. "That is why we had the walls painted instead of papering them. But these walls are still clean."

"I don't think we need wash the windows," said Ruth, "because we just washed them the other day. I made the glass all whitish with Bon Ami and water and then when it was dry, polished it off with soft tissue paper."

"Yes," agreed Mother, "they look very nice. And we just cleaned the kitchen very thoroughly yesterday—the oilcloth was wiped off with milk to keep it clean and bright, the sink was scrubbed out with hot water, soap and ammonia, and the stove was well blacked. I think we can all combine in cleaning the living-room."

While they worked, Mother amused them by telling them about her old colored Mammy. "She used to make the most dreadful time on cleaning days. She would flap around with a great turkey-feather duster that she had made herself from barnyard feathers. When I objected to the dust, she would only say, 'Sho, child, tucky-fedders was made on purpose for to dust wid! I knew how to dust befo' you was born!' I tried to show her how to dust with a damp cloth, the right way, but she simply said, 'Huh!' and went on using the turkey-feathers."

"Did you have floors like these, or did you have to sweep carpets?" asked Paul, who was brushing up the hearth.

"Almost everyone had carpets in those days," replied Mother. "I used to have to sweep my room every Saturday, and it was a real piece of work. I used to tie up my head to keep my hair clean and tie a damp cloth across my nose to keep the dust from

going up my nose and so on down into my throat and air-pipes. Then when the carpet was swept, I had to wait for the dust to settle out of the air before I started to dust the furniture and pictures and ornaments. It was ever so much harder and dirtier than just wiping up the floor and carrying the rugs outside to brush them, as we do now."

"Does dust really hurt you?" asked Paul.

"People don't often catch any real disease from dusty air," answered Mother, "but dirt of any sort is bad to take into your nose and throat. I have often gotten a sore throat from dusty air, because the tiny pieces of grit in the dust scratch the fine skin that lines the throat and nose. Then, too, you know that our shoes bring all kinds of street-dirt into the house and some of this dirt may have actual disease-germs in it. If we are careless, some of this dirt may get into our food or onto our hands and so into our mouths and may make us ill. But any way, even if dirt did not make us ill, people who respect themselves do not like to be like animals who roll in the dirt—they want to *feel* clean. You know that in Japan they have a very sensible custom of making everyone leave his shoes on the front porch, so that no dirt from the street is tracked in."

Just then Father poked his head in at the front door. "My, what a busy set of people!" he cried. "Aren't you almost ready for luncheon?"

"Dear me," said Mother. "I had forgotten about luncheon."

"Oh, I'm *inviting* you to lunch with me," said Father. "Did you suppose that I knew nothing about housekeeping? I'm a famous cook. Come and see."

And sure enough, Father had baked a big pan of apples and another of molasses cake. And if there

is anything better than baked apples and molasses cake and a big glass of milk, I don't know what it is.

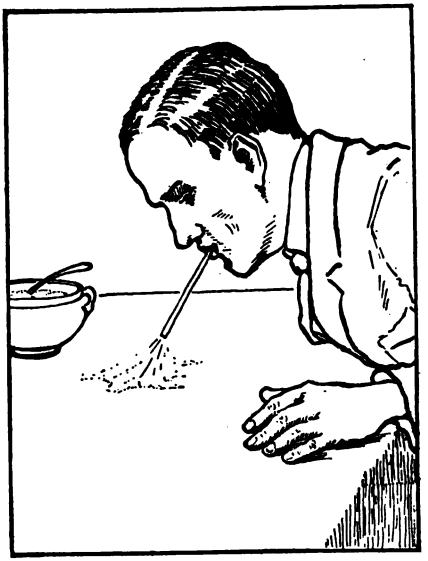
As they sat enjoying Father's goodies, he took from his pocket a catalogue. "I've decided," he said, to celebrate the housewarming at the play-house by giving Mother something for the big house. I think we need a vacuum cleaner. Here" (laying his finger on a picture) "is the one I have in mind. I

think it will help to keep the house clean with little trouble."

"How does it work, Daddy?" queried Paul, "and what is a vacuum?"

"A vacuum," explained Father, "means a place that is entirely empty—that has nothing whatever in it, not even air. You know that when you blow for a long time, you can force most of the air out of your lungs. Then, if you stop blowing, the air will rush into your empty lungs of its own accord. Get me one of those hollow-stemmed reeds out of the garden, Paul."

When Paul came back with the reed, Father cut off a piece of it, forming a hollow tube. "I don't want to suck dust into my lungs," he said, "so we'll represent the dust by this powdered sugar that I spilled on the cloth just now. Now, I will blow the air out of my lungs, so there is a vacuum there. Then I will hold the tube in my mouth over the sugar and you watch it."



So Father put the tube into his mouth and blew until he was red in the face, then he held the tube over

the sugar while Ruth and Paul watched eagerly. Instantly the sugar flew up the tube while Father coughed and sputtered as the cloud of sugar went into his throat.

"There," he gasped, when he could speak again. "That's just the way a vacuum cleaner works. The tube and bag are empty and the dust is sucked up just the way the sugar was. It's the quickest, the easiest and the cleanest way of removing dirt that was ever invented."

"Hurrah for the new vacuum cleaner," cried Mother. "Aunt Louise will be green with envy and I suppose you children will be wanting to borrow it for the play-house right away. But if we are going to buy our provisions for to-morrow, we must clear off this lunch table and get to market. All aboard for the kitchen!"

THINGS TO DO

There are many modern inventions to help us clean our houses and buildings. Suppose you collect pictures from magazines illustrating all the devices you see advertised for cleaning anything about the home. Then arrange your pictures in a scrap-book or on a chart. Put all the articles used for the same purpose together. When you have finished note which are *labor* saving and which ones are *money* saving. Which ones do you think are most important? How many have you seen? Where?

Make an experiment to show how soap helps to remove greasy dust. Shake up some oil and water till the grease is mixed through the water. Then let it stand. Now shake up some of the same oil and water with some finely scraped soap. Let *this* stand. Does the grease again come to the top or has it vanished into the soapy

water? Does this help explain why soap and lots of it must be used to get greasy things really clean?

Perhaps your teacher can get for you from your State or City Board of Health some little round glass dishes filled with a certain kind of food material on which germs like to live. If so, try this experiment. While some one is sweeping at home or in school open the little dish for a few moments. Then close it and put in a warm dark place. Now get a dry cloth and dust the room. While you are doing so open another little dish for five minutes near where the dusting is going on. Then close dish. Now get a damp cloth and dust another part of the room. Open a third dish near-by. Label all the dishes, and in a couple of days look at them.

What does the experiment tell you about good ways to clean? What proof does it give that germs may be in air?

Try the experiment Father Weston showed Paul. You can use a lemonade straw very well. Explain the result to some one so that he will understand what a vacuum is.

THINGS TO REMEMBER

The problem in cleaning wood is to take away the dirt without spoiling the paint. Read these wise rules: To clean painted wood get ready warm water, white soap and a soft cloth. Wipe the wood gently with plenty of the warm soapy water. Rinse off the soap and dry the wood. Too much rubbing or too strong soap or washing powders will take off the paint.

Painted walls can be wiped down the same way. They are cleaner than paper for this reason.

Hardwood floors can be kept pretty by wiping them with a soft cloth that has a little kerosene in it. There are many other expensive floor oils, but this is as good as any if you are careful with it.

Rugs should be taken outside to be beaten and shaken because of the dust which we do not want in the house.

When you sweep remember to have windows open. When you dust remember to use a damp or slightly oiled cloth. Dust may contain germs brought in from the street with dirt on our shoes. The dust does not usually carry dangerous germs; it does irritate our throats if we inhale it. For this reason bare wood floors, painted or polished, are more sanitary than carpets. Little or no dust is stirred up if we clean them correctly.

We wash windows with Bon Ami or some other cleaning powder in water. We let the windows dry and when the glass looks white we polish it with paper till it shines.

Sinks, wash-basins and toilet-bowls or bathtubs will get greasy. Soap and warm water and some ammonia put on with a brush are needed to remove the grease. We use its own long handled brush for the toilet. We always rinse out the basins we have used with hot water after cleaning them.

Faucets and metal trimmings need to be polished with silver or nickel polish and a chamois to get them bright.

Mops and brushes and cloths used in cleaning should always be washed out in soapy water and aired before we put them away.

TO THINK ABOUT

Make a trip through your kitchen and cleaning closet. Write a list of all the articles you find there used to keep the house clean. What would you choose to cleanse the woodwork of your room? The windows?

How would you sweep and dust? What do you think would be a good costume to wear?

How would you clean up the bathroom? Can you give any reasons for what you do?

Find out how railroads clean the coaches at the end of a trip and tell about it. Notice how your school is cleaned at the end of a day. Do you or do you not think these are good ways?

CHAPTER XVII

The Market Basket

The washing and wiping of the dishes was made more interesting because it was accompanied by a discussion as to what should be ordered for the housewarming dinner. Mother washed, Ruth wiped and Paul put away the dishes, while Father sat with pencil and paper, ready to write down the list of groceries that must be bought.

"Let's begin with the meat. What kind of meat shall we have?" said Father.

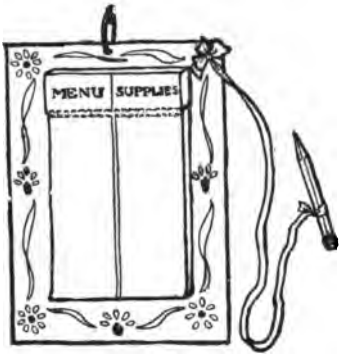
"I'd like to have Irish stew," said Ruth. "Stew isn't so stylish as chops, but I know how to make it. We learned how at the farm last summer, and it was fine, and I know Uncle George likes it."

"Very well," agreed Mother. "I think it would be nice to have a dinner that you could cook yourselves, since this is really your own housewarming. Now what vegetables shall we have?"

"There will be vegetables enough in the stew," said Father, "but let's have a salad. Something fresh and green always looks and tastes nice and is good for us, besides."

So it was decided to have stew and a tomato and lettuce salad, with home-made ice-cream and crushed peaches for dessert. Mother was to make the ice-cream and Father agreed to help Paul freeze it. Ruth

proudly copied out the bill of fare for the dinner on a special writing tablet that she had fixed herself. It hung with a pencil attached, beside the kitchen table in the play-house. It was ruled with red ink into two lists, one showing what was planned for the day's meals and one what must be bought. Ruth had spent all one afternoon designing a fancy border for it and with its red-ink ruling and pencil tied on with red ribbon, it was really an ornament to the kitchen.



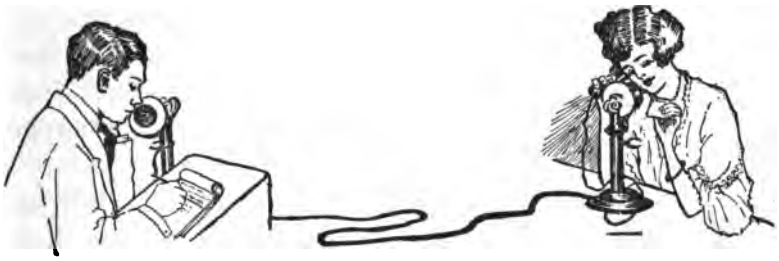
As Mrs. Weston went down the street with a child hanging on each arm, they were hailed by Dorothy Frost. "Come along, Dot," called Ruth, "Aunt Louise is coming home and we are inviting her to dinner in our new play-house, so we've got to go marketing for the things. Want to come?"

"Oh," exclaimed Dorothy, raising her eyebrows, "do you go to the store and buy your groceries? Mother always telephones. It's ever so much quicker and easier. No, I don't believe I care to go along—I don't feel very well to-day; I've got a headache."

"Isn't that just like Dorothy!" cried Ruth, in rather a vexed tone. "Why is she always so snippy? I suppose it is easier, though, to telephone, especially on rainy days."

"Of course, it's easier, if you are willing to take whatever the butcher and grocer choose to send and

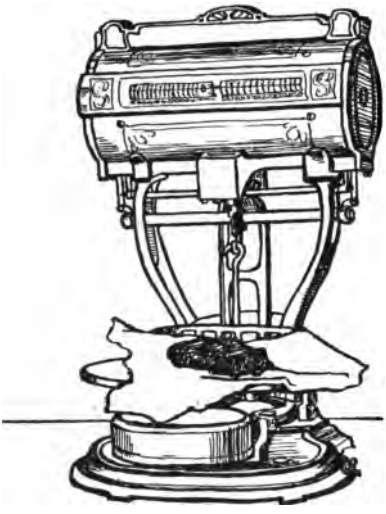
pay whatever they ask. Mrs. Frost met me on the street the other day on her way to the grocer's. She said she had never been so angry in her life, that Chase and Smith had been sending her stale vege-



tables and charging her twice what they were worth. I told her that I always went to the store or market and picked out what I wanted, and paid for it, so I always knew what I was getting and what it cost, but she said that was too much trouble."

As Mother ended, they turned into the meat market. It was a little farther away than some other stores, but it was always neat and clean, with spotless counters and meat blocks and Mr. Sullivan, who kept it, always wore a snowy apron and a broad smile. As Mrs. Weston explained that she wanted two pounds of beef from the top of the round, cut up for a stew, he scoured off the top of the meat block with a wire brush, leaving it smooth and clean. Ruth and Paul watched him as he quickly and deftly cut the meat and laid it on the automatic scale. It marked just exactly two pounds. "I want you to notice the scale carefully, Ruth and Paul," said

Mother. "This sort of scale is the best, because it gives no chance for any unfairness. Whenever you buy anything you should always make a habit of looking at the scale, to make sure that you are getting full weight."



"I don't think meat before it's cooked looks very good," remarked Ruth.

"Neither do I," said Mother, "and you know that as a rule, I don't care to have you and Paul eat very much of it. Plenty of milk and eggs are better for you, but I know Uncle George is fond of meat. So if you have to buy meat, you should know how good meat looks. You notice that this beef is bright red, not bluish as stale meat becomes, and it has little streaks of fat through it, which makes it more tender than meat that is perfectly lean."

The next stop was at the grocer's, where they bought potatoes, carrots, onions and celery for the stew and the tomatoes and lettuce for the salad. Ruth and Paul selected the vegetables themselves, following Mother's advice to choose those that looked fresh and unwrinkled, and Ruth tested the peaches by a very gentle pressure, to make sure they were ripe.

As they trudged merrily home with their pur-

chases Mother said, "How lucky we are to have a butcher like Mr. Sullivan and a grocer like Mr. Willis, who always keep clean food in a clean store and sell it at a fair price."

"How do you know what is a fair price?" asked Paul.

"The papers publish lists of what the various things cost to buy at wholesale—that is, in large amounts—and you have heard Father and me speak of the special lists of prices since the war. By reading the papers you can keep track of what things ought to cost. Then, too, people who are thrifty know what things are in season and what things are not. For instance, in June we had delicious asparagus quite cheaply, but now asparagus is out of season and fresh asparagus can be raised only in hot-houses, so of course it is very high priced. Strawberries were cheap three months ago, but now they are very high."

"Do you remember last summer, Mother, when you took us to New York, how we saw a lot of people buying things from pushcarts?" said Ruth.

"Yes, indeed," said Mother. "Hester Street looked like some scene in Europe, with pushcarts all along the curb, surrounded with women and children. I hate to think of people buying their food from such dirty carts, handled by dirty men and covered with the street dust. If I lived in a great city and had to buy as cheaply as I could, I think I should try to go to one of the big markets, instead of buying from a street-cart. The markets buy great quantities of vegetables, fruit, fish and meat, right from the

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country at wholesale, so they can sell it cheaply, and it is fresher than when it has traveled about in a cart. But we are fortunate here in Pleasantville, to have such good markets, where things are fresh and clean."

As they entered the home gate, Father came down the walk to meet them. "This little pig went to market," he said, "and let's see what came back in the market basket for the lazy pig who staid home."

THINGS TO DO

Find out if there is a public market near your home and visit it. Find out where the food comes from; if the people that sell it raised it, and when it was prepared for the market. Notice how the food is protected from heat, dust, flies, handling. Are there telephones? Delivery wagons? Note the price of ten common foods. What do you find out about quality and price of food at these markets?

Visit a grocery and try to find out the same things. What do you learn about quality and price here? What

advantage is there in buying at a market? A grocery?

Visit a commission market if you can. Compare it with the public market and the grocery.

THINGS TO REMEMBER

To get good food cheaply we must use our brains. A careful housekeeper makes a list of what she needs for the day before she begins to buy. She goes to market and picks out her food. It is easier to telephone for it, but the food then costs more and may not be fresh and choice.

A careful housekeeper buys meat from a good butcher only. A good butcher keeps his meat screened, and in hot weather on ice. His chopping block is always freshly scoured. He has an automatic scale, so the customer can see that she gets full weight. Good and fresh meat is firm, pinkish, with a fresh smell. Tiny streaks of white fat through the meat show that it is tender. Every person, boy or girl, should learn to recognize good meat.

The careful housekeeper is just as particular about her vegetables and fruits. She buys only unwilted, crisp vegetables which have not been exposed to dust or careless hands. She chooses ripe, unspoiled fruits. She buys the things that are in season when they are plentiful and cheap. She is careful to buy for her family much fruit and vegetables, little meat, not more than once a day, much milk and cereals. She knows that such a selection of foods means strong bodies and clear minds.

TO THINK ABOUT

Can you make up some problems, giving actual prices, which will show whether it is cheaper to buy at market or grocery? At a cash grocery or at one where you telephone, charge and have goods sent?

Why is an automatic scale better than one weighed by hand? Where have you seen automatic scales? Can you describe one?

What will you look for in a butcher shop before you decide if this butcher shop is a first-class one? In a grocery? In a bakery?

Why are public markets useful to people?

How can you tell good meats from poor ones? Good vegetables from poor ones? Are there any reasons why a person might not like to buy food from a pushcart in the street?

What are some reasons why you would *not* think it a good plan to telephone for your supplies?

CHAPTER XVIII

The Store Closet

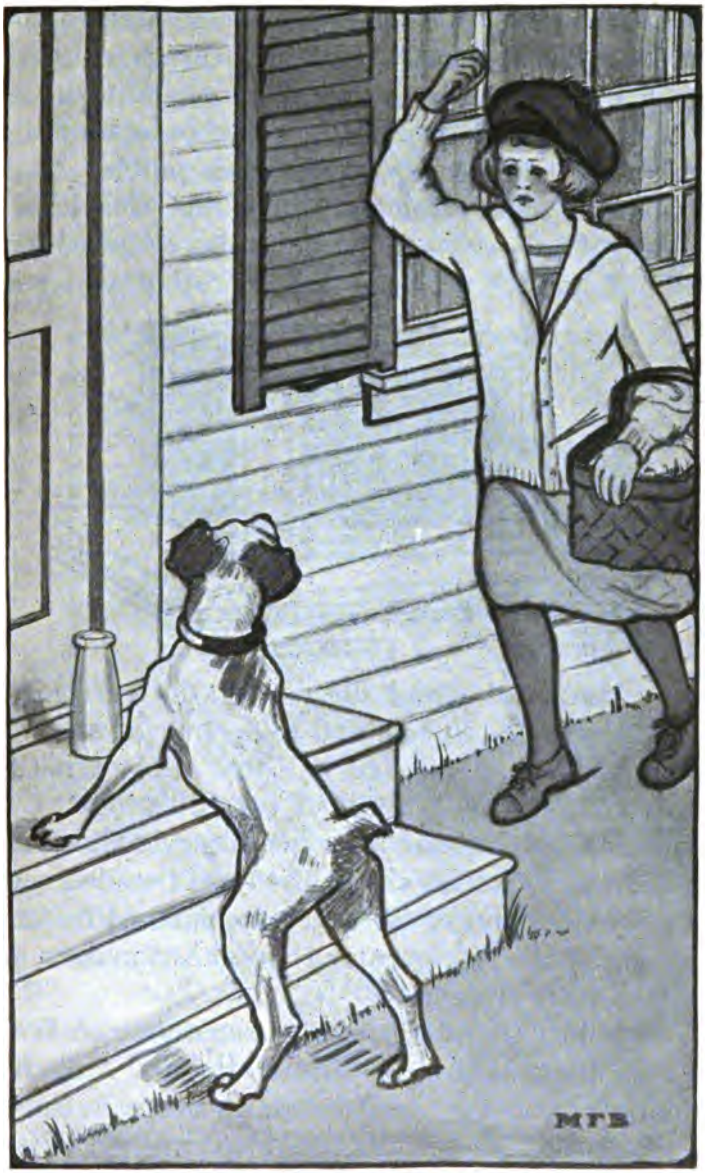
As Ruth, with the market basket on her arm, ran past the back door toward the play-house, she uttered a cry of dismay. On the back steps stood a pint bottle of cream which the milkman had delivered while they were marketing, and Zuzu, Jim Nixon's terrier, was licking some stray drops of the cream from the top of the bottle.

"Stop it, Zuzu," she cried. "Don't you know better than to lick other people's bottles?"

Evidently Zuzu didn't, for he looked up with a doggy smile as Ruth brandished her arm at him.

"Now we'll have to wash the bottle," said Paul.

Mother had been watching from the kitchen window. "You certainly need lessons in housekeeping, Paul," she said. "A good housekeeper never puts a bottle of milk into her refrigerator without washing it, and especially the rim, very carefully. Even if Zuzu hadn't touched it, just think of the dust and dirt that have blown onto it; think of the dirty ice that has lain against it and of the dirty hands of the driver who brought it here. He has to handle his horse and his reins and then he picks up the milk bottles by their tops and we pour the milk right over those same bottle-rims. If we don't wash the bottles well, we shall swallow a lot of dirt and perhaps the seeds of some disease."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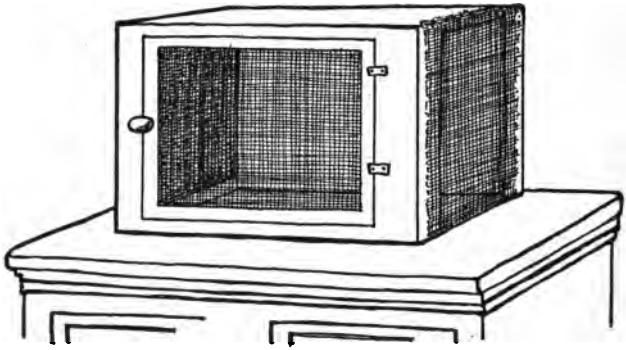
As she spoke, Mother picked up the cream bottle and handed it to Paul. "Take the things over to the play-house and I'll come over in a moment," she said.

As the children reached the play-house, they heard a sound of hammering on the back porch. Father had gotten there ahead of them and was hard at work. "What are you making, Daddy?" asked Ruth.

"I thought," said her father, "that you really

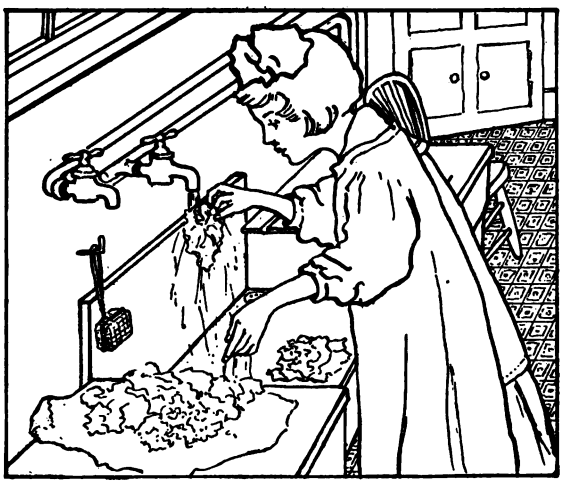


need a screened closet on top of the refrigerator to put hot dishes to cool and to keep fruit and other things that must be cool but that do not need to be very cold. So I knocked two sides out of this wooden box and tacked wire netting over them, so as to let the cool air blow through. Then I made a screen door for the front of it. I've just finished fastening it on top of the refrigerator. Doesn't it make a good outdoor store-closet?"

"It's just the place for the tomatoes and fruit," said Mother, who had joined them. And Ruth proudly placed the tomatoes and peaches in the new screen-closet. Meanwhile, Paul had washed the milk

bottle until it shone—especially the rim—and he was just laying the package of meat on the refrigerator shelf when Mother checked him.

"Wait a moment, son," she said. "Mr. Sullivan keeps a very clean butcher shop, but one can't be too careful. The paper that the meat is wrapped in may be fly-specked or dusty. Besides, meat that lies wrapped in paper is likely to have some of its mois-



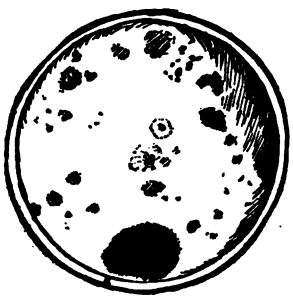
ture absorbed by the paper and become dry and tasteless. The best way is to take the paper off, wipe the meat with a clean, wet cloth, and then put it away on a clean plate."

While Paul attended to the meat according to Mother's directions, Ruth washed the cream bottle clean and put it beside the ice in the refrigerator. She was just laying the lettuce beside the bottle when Mother said, "Let's look at that lettuce a minute,

Ruth." With Ruth leaning over her shoulder, Mother stripped off the outer leaves of the lettuce. In the crinkly pockets on the inside of the leaves there was so much dirt that Ruth exclaimed, "Oh, dear, I never thought lettuce could be so dirty."

"I suppose when it rained so hard night before last, Miss Lettuce was sound asleep in her garden-bed," said Mother. "The rain came down slop, slop, splash, splash, and as it struck the black earth, the dirty water spattered all over Miss Lettuce and ran into the folds in her pretty green gown—that's how she came to be so dirty. But we don't want to put all that dirt into our clean refrigerator. The ice was washed, you know, before it was put in, and Ruth washed the cream bottle, so we'll wash the lettuce, too."

So Ruth carefully held each lettuce leaf under the faucet, turning it over and over, then put them all together into a square of clean cheese-cloth and laid it on the ice where it would keep crisp and nice until to-morrow. "Professor Dodge showed me a photograph the other day," said Father, "that would interest you. He had put some dirty water from a lettuce leaf onto a plate with a little gelatin in it, and whole colonies of germs had grown there in a few days. It proved how many germs there can be on one leaf and how necessary it is to wash fruit and other things that we eat raw."



"But," objected Paul, "look at the dirty things that Rover and Zuzu eat, and they never get sick. Jim Nixon says his Uncle Horace went to Africa once, to a place where all the negroes ate dirt—just ate it because they liked it!"

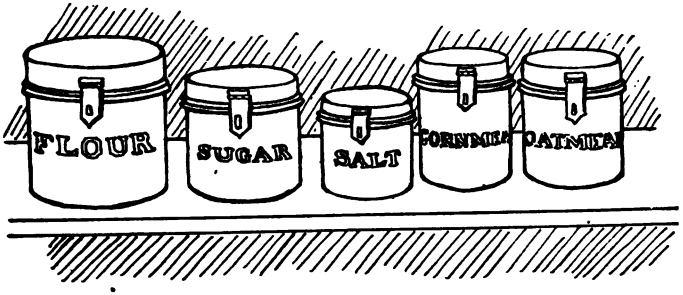
"Oh, Paul," cried Ruth, "Jim was fooling you."

"No," said Father, "in some parts of Africa and the West Indies, there are negroes who really do eat dirt, but the reason is that they are sick and have an unnatural appetite for dirt. No one who is well and who wishes to be clean, inside and out, wants to eat dirty things, because poor savages and dogs do."

While they had been talking, Mother had been filling the jars in the pantry with oatmeal, flour, sugar, cornmeal, salt and other things. Each shelf was covered with clean white oilcloth, so that it could be washed clean. The white shelves, with the blue and white jars sitting in shining rows, looked very bright and pretty.

"That closet reminds me," said Father, "of a story that my grandmother used to tell. It was about a prince that went out into the world seeking a wife. When he came to a castle, where a beautiful lady lived, he would say, 'I am forbidden to look upon any maiden except in a mirror.' Then the proud maiden would have a mirror brought, but the prince always thanked her and went sadly away. At last, he came to a humble cottage where a lovely girl named Blanche lived. She was called Blanche because the name means 'white,' and her whole tiny cottage was

spotlessly white and clean. But poor Blanche had no mirror, so when the prince asked to look at her in a mirror she ran and got her dishpan, which was pol-



ished so it shone like silver. The minute the prince saw her reflection in the dishpan, he cried, 'You are the Bride that I have so long sought, for you will keep my palace as snow-white as your cottage.' And so, as my grandmother used to say to my little sister, 'A clean kitchen and a shining dishpan make the plainest housekeeper look beautiful.' "

THINGS TO REMEMBER

Food carefully bought must be carefully stored at home. Outdoor screened closets keep fresh and cool food that does not need to be on ice. This way of storing food saves ice and space in the refrigerator for the perishable things.

Everything that goes into the refrigerator must be as clean as we can have it. Milk bottles, and especially their tops, must be carefully washed and wiped to remove dirt or possible germs that may have come from contact with dirty hands or dirty ice. Meats should be taken out of the paper they were wrapped in, wiped with a fresh, moist cloth and laid on a clean plate. Lettuce and celery should

be separated and washed piece by piece in running or clean water, then wrapped in a clean cloth and laid on ice. Indeed every food should be taken out of its grocery wrapping paper and put into a clean container. Then you are ready to put your food into its closet or refrigerator.

The *cleanest place in the house* should be the kitchen, and the most careful person should be the cook.

TO THINK ABOUT

How can you save ice and still keep food cool and protected from insects?

Why ought we to wash the tops of our milk bottles before we put them away or pour milk from them? Watch the drivers of milk wagons and see if there is a reason. Notice where the bottles stand before they are brought indoors.

Examine the next vegetables that come to the house—especially lettuce or spinach. What reason for washing them before putting them away, do you find? How can we keep lettuce and celery fresh and crisp?

How does a good housekeeper put away her meats? What food besides meat MUST go into the refrigerator as soon as we get it? What are the reasons?

Why do we want the people who cook and care for our foods to have the cleanest habits?

CHAPTER XIX

The Milky Way

"There," said Mother, as she untied her apron and joined the rest of the family on the front porch, "the ice-cream is all made, Paul, ready for you and Father to freeze it the first thing tomorrow morning."

"Did you put it where Billiken can't get at it if he should sneak in?" asked Paul, anxiously.

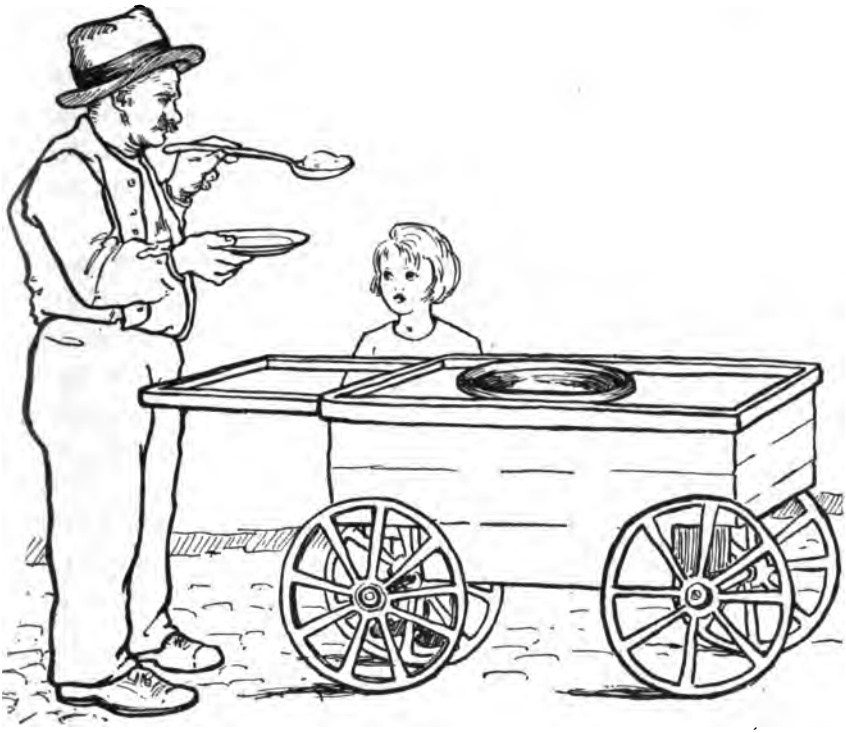
"Yes, indeed. It's in the screen-closet on top of the refrigerator. By bedtime it will be cool enough to go into the refrigerator, itself."

"I think home-made ice-cream is ever so much nicer than the kind you buy," said Ruth. "The other day Minnie Nixon was absent from school and afterward she told me that it was because she ate some ice-cream that she bought from the hokey-pokey man, and it made her dreadfully sick at her stomach."

"Why do they call it 'hokey-pokey'?" asked Paul. "It's such a queer name."

"I suppose they gave it that name because it isn't real, good, genuine ice-cream—just a sort of sham. You know, a 'hocus-pocus' is another word for a 'hoax,' or trick. So hokey-pokey ice-cream is a cheat. It's cold and tastes sweet, but it isn't good, clean wholesome food, as home-made ice-cream is, and anyone who buys it is likely to be cheated, as poor Minnie was."

"The hokey-pokey men are usually dirty," said Ruth, "but I don't see how the dirt gets inside of the ice-cream can."



"It isn't just dirt, Ruthie, that makes people ill," said Father. "Milk may not have any actual dirt in it, but if it is stale, the germs have grown and grown until the milk is spoiled. The acid in sour milk, if it stands in a tin, like the freezer, is likely to form a sort of poison and make you very ill. That is probably what happened to Minnie."

"Minnie is careful enough now," said Ruth.

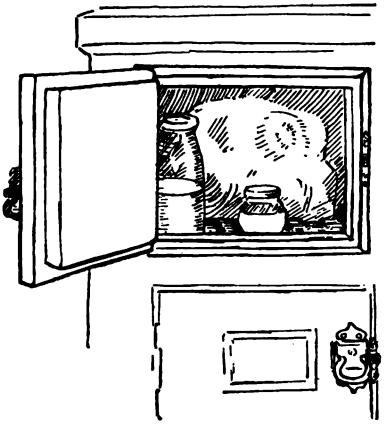
"When she and I were making fudge yesterday, I opened the can of condensed milk and left it standing a minute on the table and she screamed at me, 'Ruth Weston, don't you know any better than to leave that milk standing in the tin?' She came near throwing it away, just because it had stood in the open tin for a moment."

"Well, I wouldn't want you to be too fussy," replied Mother, "but it really is dangerous to leave any food, especially milk, in its can after it has been opened. You know that when I canned tomatoes last week I was very careful not to have any bubbles of air in the jar, for the air has in it the germs, or seeds, that cause decay and turn things sour. So, when you open a tin of milk, the germs begin to get busy, and the milk should be poured at once into a glass or china or enamel pitcher or pan, and should be kept cool, just as if it were fresh milk. Canned food is very convenient, but it needs care, or it may make you ill."

"Colonel Wyndham told me," put in Paul, "that in the army they used milk that had been dried into a powder. Why didn't the powder turn sour?"

"Because the germs that turn things sour need water in order to live. When milk is dried into a powder all the water is taken out of it and no germs can live in it. When powdered milk is to be used, the

cook simply adds water to take the place of the water that was dried out of it. You know that when we talked about germs, we said that all germs need water and like warmth and darkness. Fresh milk is warm and wet, and if it is put into a dark milk can it makes a lovely place for germs to breed. To keep milk in good condition, it should be clean, cool and covered—that is easy to remember on account of the three C's."



"That was why I put the cream on the ice this afternoon, instead of leaving it in the hot sun," said Paul.

"Yes," said Mother, "the milk and cream bottles should be kept as cold as possible. And they should be covered. When you take the cap off of a bottle, be sure to replace it, or, better still, cover the bottle with a clean tumbler, turned upside down. The cap is often soiled, and the tumbler makes a fine cover."

"Covered," said Ruth, thoughtfully, "and Cold and Clean. But even if we keep the milk in our own

house as clean as can be, suppose it isn't clean to start with."

"That is where we must all work together to *get* clean milk," said Father. "I remember several years ago that we found we were getting dirty milk. After the milk had stood awhile, you could see a layer of gray in the bottom of the bottle, where the dirt had settled. Wharton was the only milkman in town, then, and when anyone complained to him about the milk, he would say, 'Well, if you aren't satisfied, get another milkman. I do the best I can.' So some of us got together and decided that if Wharton wouldn't give us clean milk, we'd have to be our own milkmen. So we took a journey into the country and found a farm where there were healthy cows and a clean barn with a clean, careful owner. We agreed to buy all his milk for a year. Then we hired a man to take the milk from the railroad station and serve it at the different houses. After awhile, the man whom we had hired set up his own milk business. He gave good, clean milk and Wharton found that he must sell clean milk, too, or lose all his customers. That is one reason why we have good milk here in Pleasantville."

"I saw a little girl the other day," remarked Ruth, "carrying home a pail of milk from the grocery. She had a nice new tin pail with a cover, to keep the dust out. Isn't that just as good as a bottle?"

"It is a great deal better than carrying milk, as lots of people do, in an open pail, with all the street dirt blowing into it," said Mother, "but milk that is not sold in bottles—'loose' milk, as it is called—has a

good many more chances of getting dirty than bottled milk. Can you think why?"

"Well," said Ruth, slowly, "I suppose the grocer might be careless and leave the cover off, and flies might get in."

"Yes," added Paul, "and once I saw the cat in Rogers' grocery licking the edge of the can."

"And those big cans are harder to keep clean than small glass bottles are," put in Ruth.

"In a good many places," said Father, "it is against the law to sell any but bottled milk."

"Wouldn't it be safer not to drink milk at all?" asked Paul.

"No, indeed, son," said Father. "Milk is just about the best food there is, especially for young folks. Mother and I only want you to be careful to eat clean things, but that doesn't mean that milk is dangerous and ought not to be used. Up there in the sky is what we call the 'Milky Way.' It is made up of millions of stars, so far away that we can't see each separate one. Down here on earth, we have a real Milky Way, made up of millions of quarts of milk that come streaming into the cities giving food to babies and invalids and children and grown folks, too. I don't know what we would do if it were not for this Milky Way. Every year it grows bigger and bigger; every railroad carries great cars built for refrigerators to hold the milk. And you know how many pennies you children have given so that milk might be sent to the children in Europe. Yes, indeed, milk is the best food, so let's keep our Milky Way clean and pure."

MFB

THINGS TO DO

Perhaps your teacher will take you to visit the most sanitary dairy in your town to see how the milk is received and tested, bottled and distributed. Try to think of the reasons for each process.

Find out if your city inspects milk. Find out if it publishes any lists of good dairymen. Find out if your city has any standards for milk that the farmers and dairymen must come up to. Find out where the milk you use in your home comes from and how good it is.

Find out what the best milk in your town costs per quart. Make a list of the things that should be done to such milk from the time it leaves the cow till it reaches your home to keep it sanitary.

What is the value to the body's health of a quart of good milk compared with a pound of beef? Make up your mind then if a quart of good milk is expensive or cheap.

THINGS TO REMEMBER

Milk is the most important of all foods for babies and growing children. Without it they cannot grow as they should. Therefore, to keep it safe, milk and everything made from milk must be kept away from germs. Germs can grow in milk and make poisonous substances there when we are careless with it. Such spoiled milk makes people very sick and kills many babies every year.

To care for milk we must keep it covered, clean and cool.

Milk must come from a clean place. The cows must not be sick. They must be kept clean and milked in a clean, airy barn. The milkers must be healthy and must have scrubbed hands and must wear clean clothes. The buckets in a clean dairy are always steamed and kept covered till used. Careful farmers strain the milk into sterilized cans and cool it at once. They send these cans to the city, in refrigerator cars if possible, as soon as they

can. The good city dairy then takes care of the milk in a clean way until it is bottled and left at your door. Milk that is sold from a can instead of in sealed bottles, is not the best milk. Do you see why?

Often milk is preserved. It sometimes has all of its water taken out. Then it is a white powder. In this form it will keep a long time, because germs cannot live in dry substances. Sometimes milk is condensed, and sometimes evaporated. Both of these kinds of milk have much of the water taken out. When we open a can of such milk we must pour all of it into china or glass and keep it cool—not letting it stand in the tin. If we do, germs may grow in it, and injurious substances may be formed in the can.

Remember that milk is your best friend. Treat it as such by giving it the best care you can.

TO THINK ABOUT

If you could choose only one food for a baby what would it be? Why is this food so necessary?

What are the three C's to remember about the care of milk?

Someone who has been to a model dairy in the country will tell exactly how the cows were cared for and how the milk is prepared for shipment.

Someone who has been to a big city creamery will tell about the care of milk in the city.

Tell a story about the milk you would like to drink for breakfast, from the cow to your cup.

How can people have milk to use where there are no cows and where fresh milk cannot be sent?

Does ice-cream need to be cared for the same as milk? Have you ever seen ice-cream that you think might not have been pure and clean? Where?

Do you think your city ought to help its people to get good milk? Why? How could it do so? What can all of us do to make sure our city has a good milk supply?

CHAPTER XX

THE HOUSEWARMING

"WELL," said Aunt Louise, looking up from the last spoonful of her ice-cream, "this has certainly been a most delightful housewarming."

The moment that Aunt Louise, with Uncle George and the baby, had appeared on the front steps, Ruth and Paul had rushed out to capture her and escort her over the play-house. She had admired Ruth's room, praised the spotless bathroom, exclaimed over the convenient kitchen and now, as she looked around at the work-play-study-living-room, she patted Paul's hand and gave Ruth a squeeze. "It is just perfect," she said, "and I hope it will always stay so."

"What makes you say that?" asked Ruth, looking a little troubled. "Why shouldn't it stay so?"

"Why, Ruthie," said Aunt Louise, "you know there is a saying, 'A new broom sweeps clean.' That is another way of saying that when a thing is new, it is easy to keep it pretty and take good care of it, but when it is an old story and we are not so interested in it, we are tempted to neglect it."

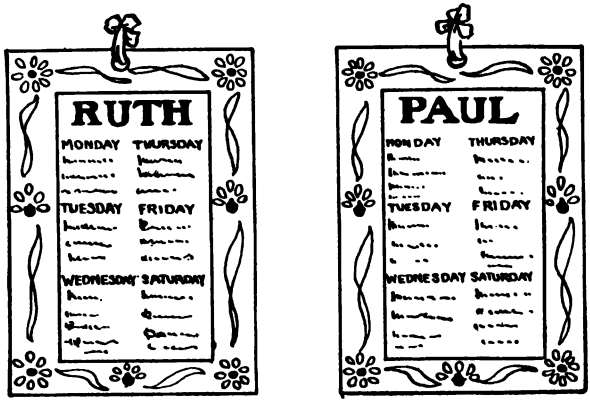
"I see what you mean," replied Ruth. "When Dorothy Frost first had her bicycle, she used to polish the handle-bars every day and throw a cloth over it at night, to keep off the dust, but now she leaves it out in the rain and doesn't care how it looks."

"But we aren't going to be that way about this play-house," cried Paul. "We've settled just how to take care of it. Ruth is going to see to her room and the bathroom and kitchen, and I am going to see to this room and the porches. Of course, if Jim Nixon or any of the other boys come in and we make candy, we'll clear up the kitchen, and if Ruth has any of the girls here in this room, they'll clear up after themselves, but generally I take care of this room and she takes care of the kitchen."

"That sounds like a fair division of labor," said Uncle George.

"Oh, we have it all beautifully arranged," said Ruth, and she ran across the room to her desk. "Yesterday I made a list for Paul and one for me. They are like the marketing list that I made for the kitchen, only instead of the things to be bought, they are lists of the things about the house that we each have to do."

Aunt Louise studied the two lists with interest.



"It looks to me as if you were going to be first-rate housekeepers," she said.

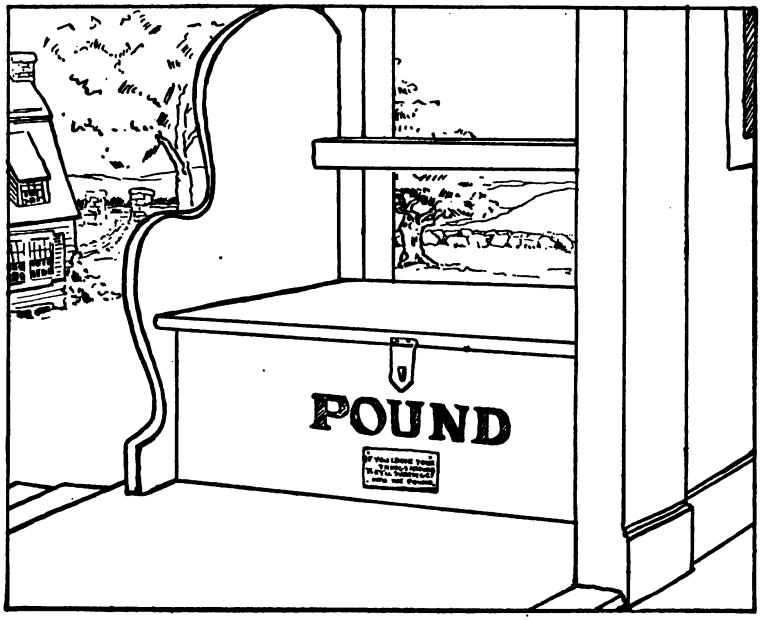
"I don't suppose," said Uncle George, with a teasing smile, "that Ruth will ever leave Edith Louise on the kitchen table, or Paul will throw his cap on the mantel-piece."

"Oh," admitted Ruth, "I suppose we shall forget for a while, but Mother thought of a splendid scheme."

"Yes," chimed in Paul. "Do come out on the porch, Uncle George, and see."

So they all adjourned to the porch, where Paul pointed out the two boxes, with hinged lids, that had been made into seats on each side of the porch. "This one has the tools and croquet set in it," he explained, "but this one we are going to call the 'Pound,' because all the mislaid things go into it."

Uncle George stooped down to read the inscription on the box. It was labeled POUND, in large



letters, and underneath was a card on which Ruth had printed:

"If you leave your things around,
They'll surely get into the Pound."

"And who puts things into the Pound?" inquired Aunt Louise.

"Whoever finds them," said Paul. "Yesterday I put two of Ruth's handkerchiefs in, because she has a way of tucking them under her chair cushion when she's reading."

"Yes," said Ruth, "and I put in Paul's baseball mitt and I was just going to put his knife in when he saw it and whisked it into his pocket."

"Dear me," said Uncle George, "and do the mislaid things have to spend the rest of their days in the Pound?"

"Oh, no," said Paul. "You see, here inside is a pasteboard box. When you want to get anything out of the Pound, you must put a cent into the box."

"And what will you do with the money?" asked Uncle George. "If you keep on, the box will be full of pennies."

"Oh, no," cried Ruth, "I have almost broken myself of leaving Edith Louise around and pretty soon I'll have cured myself of that trick of tucking my handkerchief away. But I suppose for a while Paul will forget. We're going to use the money for popcorn and nuts and things, so as to make candy when we have company."

"Bet you I don't forget so much as you do!" cried Paul, indignantly.

"Well, well," said Mother, soothingly. "'The proof of the pudding is in the eating,' and the proof of who is neater will be who has fewer pennies in the box. Now suppose we go inside again. It's rather cool out here and I think a little fire on the hearth would be pleasant."

So they sat in a circle about the blazing fire, watching the crinkly lines of flame run along the logs—"like the rivers on a map," as Paul said.

"What do you see in the fire, Uncle George?" asked Ruth.

Uncle George leaned forward and stared into the leaping flames. "Over in the corner, under the big

log, I see a dark cave," he said. "And above it, where the flame shoots up, I see a forest. In the cave live your great-great-great-twenty-five-thousand-times-great-grandparents. The father hunts all day while the mother sees to the children, gathers berries and roots and tends the fire that warms the cave. And in the tree-branches overhead swarm men that seem almost like monkeys, fighting and chattering."

"I'm glad our house is not like that," said Paul. "And what do you see, Daddy?"

"The pointed flames look to me like tents shining in the desert sun," said Father. "I see the men galloping forth on their black chargers, with banners streaming in the wind. The women and children stand at the tent doors and watch them out of sight. There will be a great fight with a neighboring tribe and to-morrow the tents will all be packed up and the tribe will be off across the desert into the land that they have taken from the enemy. They must be Arabs, for they wander, wander eternally, seeking fresh homes."

"I like that picture better than Uncle George's," said Paul. "I always thought I'd like to be an Arab."

Ruth had been thoughtfully stroking Pussy's silky ears. Now she looked up. "Don't you see a different picture, Auntie?" she said.

"Yes," nodded Aunt Louise. "I see, over there in the corner, a vast Hall, where crimson and golden banners hang on the wall and where knights and ladies are seated at a great table feasting. They are drinking a great deal of red wine, and on the table there is

a mighty boar's head. But the floor is strewn with rushes and the poor people who sit at the lower end of the room shiver in the draught of cold air that blows through the Hall."

"What does Mother see?" asked Uncle George.

"I don't see anything so exciting and romantic as cave-ancestors, or Arabs, or knights and ladies,"

smiled Mother. "I see just our own happy selves in our own cheery home. In the smoke, I read the word H-O-M-E, and I think the H stands for Health, the O for Order, the M for Merriment and the E for Energy. Ruth and Paul have learned to make their play-house a real home, healthful, orderly, full of merry fun and energetic work. I'll bring in some lemonade and we'll all drink to the long life of the Play-house home!"

TO THINK ABOUT

What habits have you that prevent your house from being neat and clean? Does this story suggest any ways by which you could overcome them?

Which can you describe of the many ways in which our houses are better than those of our far away ancestors?

What does coöperation mean? How would it help in making our homes the best the world has even seen? What part in this could each of us have?

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